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CONTENTS

ORIGINAL ARTICLES

PAGE

The Etiology and Prophylaxis of Cancer. *Henry T. Byford, M. D., Chicago* 81

The Modern Diagnosis and Treatment of Cancer of the Stomach. *Carl Beck, M. D., Chicago* 86

The Important Elements in the Leprosy Question in the United States. *Ernest L. McEwen, M. D., Chicago* .. 91

The Chronic Running Ear. *Richard H. Brown, M. D., Chicago* 95

Some Advantages of the Indian Intracapsular Cataract Operation. *Edward E. Edmondson, M. D., Mt. Vernon, Ill.* 100

Swimming Pool Conjunctivitis. *Harry S. Gradle, M. D., Chicago* 102

PAGE

Arthritis Deformans. *George F. Butler, M. D., Mudlavia, Kramer, Ind.* 103

Charcot's Joint. *James Y. Welborn, M. D., Evansville, Ind* 108

The Roentgen Examination of the Appendix. *Maximilian John Hubeny, M. D., Chicago* 109

Tetanus, with Report of Cases. *J. Niess, M. D., Carmi, Ill.* 111

Early Consideration of Paresis. *G. W. Morrow, M. D., Anna, Ill* 114

Panama as Seen by a Physician. *I. L. Fitzbaugh, M. D., Robinson, Ill.* 116

The Laboratory Significance. *John R. Ledr, Ph. D., Chicago* 120

(Continued on adv. page 28)

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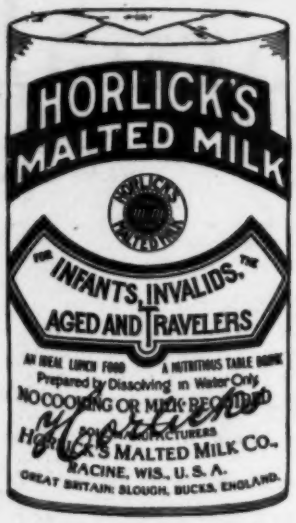
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VOL. XXIX CHICAGO, ILL., FEBRUARY, 1916 NO. 2

Original Articles

THE ETIOLOGY AND PROPHYLAXIS OF CANCER.*

HENRY T. BYFORD, M. D.

CHICAGO, ILL.

While the form in which this communication is cast resembles that of an argument, it is not expected to prove anything. My aim is to present a few fairly well established facts that have led me to draw certain conclusions with regard to the etiology, and from these conclusions to formulate such recommendations of a prophylactic nature as they may seem to justify.

1. Carcinoma is most prevalent between the ages of forty and seventy years. It is seldom observed in children, and less and less often after the seventieth year.

2. In men carcinoma affects the stomach most often and the intestines next. In women it affects the neck of the uterus most often, the breast next and the stomach next.

3. Primary carcinoma does not attack healthy tissue, nor is it a disease of old age, although age may diminsh resistance. It has some relation to a weakened local resistance of epithelial surfaces due partly to changes incident to chronic irritation and partly to changes connected with a decline or impairment of function in epithelial structures. We have an illustration of such chronic irritation in carcinoma of the lips and stomach, of decline or impairment of function or deterioration of structure in carcinoma of the breast and ovary, and of both in carcinoma of the uterus. Women bearing children frequently are not so often affected as those who have not conceived for a long time. The same is true of mice. (Dr. Maud Slyle.)

4. Occupation has a decided influence upon its prevalence. Chimney sweeps, hotel servants, industrial laborers, brewers, furriers, general laborers in cities and traveling agents are among those with a high mortality, while coal miners, farmers, teachers, clergymen, agricultural laborers, locksmiths, gas fitters, tanners, pressmen, compositors and printers are at the other end of the list.

5. Carcinoma is increasing in frequency both in this country and in Europe. The increase is chiefly in men and is greater in the alimentary canal than elsewhere. The coincident increase of gastric ulcer probably has something to do with it. A study of the Paris death reports for the years 1886 to 1905 seems to show that carcinoma of the uterus and breast were practically the same during that period, while carcinoma of the stomach increased from 21 to 46 per thousand and carcinoma of the intestine from 9 to 15. Cabot and others have demonstrated that a large proportion of internal diseases are diagnosed erroneously. It is not improbable that many deaths from carcinoma have not been diagnosed correctly in the past, and that with greater frequency of autopsies and a better knowledge of internal medicine more cases are now recognized than formerly. Carcinoma of the skin, which has probably always been diagnosed, has not shown any increase.

6. Carcinoma is more prevalent in populous districts, both urban and rural, than in newly settled areas, more among civilized people than savages, more in human beings than in domestic animals, more in domestic than in wild animals. Among domestic animals it is found most in cats, dogs, and mice who eat man's food and dirt, and least in sheep, who associate less intimately with man and do not eat his food. Dogs and cats have more stomach and bowel affections than sheep. The dog has his attacks of nausea, diarrhea, and constipation, while the cat is often seen to vomit and have fits.

Carcinoma occurs with relative frequency in people in prosperous surroundings, who either travel or associate with travelers and who eat

*Read before the meeting of the Western Surgical Association, Dec. 18, 1915.

foods brought from different places. Sailors have a comparatively high mortality, while fishermen in out of the way fishing villages often show a very low mortality. Furriers, who work with skins with the hair and dirt on them have a high rate of mortality, while tanners, who work with skins that have been through processes that would remove and kill germs have a comparatively low rate.

7. Carcinoma is to a certain extent a disease of locality. It is much more prevalent in the temperate zone than in the torrid and frigid zones, more in low and damp districts than high and dry ones. In localities quite near one another the incidence varies greatly according to local favoring conditions. For example Bela (Central b. f. Bakt., 1898, Vol. XXIV), gives the following facts about Luckau:

> Its eastern suburb, which is low lying and marshy, being intersected by irrigation channels for market gardening, comprising 1,000 inhabitants, furnished 73 cancer deaths, or one in nine of its total mortality. * * * The cancer mortality of this suburb was four-fold that of the central part of Luckau.
>
> In curious contrast with the foregoing, the high-lying and dry suburb of Sando, comprising 1,000 inhabitants, had not a single death from cancer during the whole twenty-two and one-half years.

Many similar observations are on record.

Gardners have a rather low rate of mortality, yet one observer found that gardeners about Berlin had a high rate. This would seem to indicate that in this case some local influence was the cause.

8. Cancer hardly ever affects the pancreas, or duodenal ulcers, and but seldom the liver and spleen.

From these facts and others that are too well known to require special mention, I have drawn the following conclusions:

1. We are justified in assuming for argument's sake that carcinoma is an infection, and that it will not be a waste of time to make a review of facts and probabilities on this basis.

It is difficult in any other way to account for the extent of its unusual prevalence in one of the suburbs of Luckau and among the gardeners of Berlin, nor for a death rate of 9.5 per thousand in Sweden against 0.41 in Brazil, nor for its selection of chronic sores and non-functioning glands as sites of invasion, nor for the local effect of trypsin in cleaning off, and keeping clean, the ulcerated surfaces of invaded tissue. It is also difficult to account in any other way for the greater relative increase of carcinoma in populous districts, both urban and rural, than elsewhere. In such districts there is more traffic and travel, and thus greater opportunities for the introduction and spread of infection.

The fact that a fresh wound in a healthy individual cannot be inoculated, while patients with carcinoma sometimes have secondary growths produced in fresh wounds indicates that there is a certain kind of immunity to the infection that such patients have lost. It is easy to conceive how cancer germs may find lodgment in an area of chronic inflammatory action where the circulation is impaired and the epithelial structure has deteriorated and may resist the handicapped immunizing process of the patient until it has established its own immunity. This is, in a way, the opposite of inoculating a patient possessing ordinary immunizing powers with an attenuated virus in order to establish his or her immunity to them. The necessity of overcoming the patient's immunity may mean a long incubation period as with leprosy, and makes it difficult to trace the infection to its source. There is nothing strange about the impossibility of primary inoculation since it is also characteristic of the bacillus leprae.

When a primary carcinoma is removed and a few slightly infected glands are overlooked the patient may recover the normal immunity and it may take the remaining germs anywhere from one to several years to overcome it. Or the immunizing process may have been stimulated to increased activity by the primary growth and may be able to cope with the few that remain.

2. Although carcinoma is sometimes inoculated into the skin or other external epithelial surface it is in a great preponderance of cases introduced into the system with the food.

Its comparatively frequent occurrence in the alimentary canal from the mouth to the rectum is convincing evidence of this. The frequent primary invasion of the breast, uterus and gall bladder in women can hardly be explained by its entrance in any other way. The liability of ordinary food to contamination by handling and exposure is shown by the following quotation from the *Journal A. M. A.* (Vol. LXV, No. 23, p. 2015).

> Prof. C. H. La Wall, chemist of the Pennsylvania dairy and food commission, is said to have found the

following assortment of objects and substances in raisins exposed for sale on a Philadelphia street; pieces of prunes, beans and rice; strands of human hair and cat fur; cotton and wool fiber; straw and bits of bran; insect wings and legs; cigar and cigaret ashes, and a yellowed cigaret paper.

3. The human feces are carriers of germs of carcinoma both in individuals affected with the disease and in many who are not. The same may be said about the feces of the dog and the cat.

The occurrence of primary infection in the colon and upper rectum shows that the germs that get by the pancreatic secretions can survive to infect the rectum. If they reach the rectum alive they can, of course, be passed out and may find lodgment elsewhere. The comparative frequency of rectal cancer in dogs would make the same reasoning apply to them. The fact that dogs seldom have carcinoma of the bowels above the rectum would indicate that they are comparatively free from chronic lesions of those parts. In human beings who have no susceptible areas in the alimentary canal the same can, of course, occur. Such infections of the feces can be made to explain how chimney sweeps, who are frequently affected with chronic irritation of the scrotum and are probably not always over-cleanly in their habits, get the scrotum inoculated. Their occupation provides the lesion for inoculation. Infection of the feces can also be made to account for the frequency of carcinoma of the cervix uteri. Unless a woman washes the parts thoroughly, or takes a sitz bath, after each bowel movement, fecal infective matter will not infrequently be left on the perineum about the anus and in the overhanging vulval hair. As most women who have a chronic cervical lesion either examine themselves by indagation, or use douches or tampons or suppositories, or wear a pessary, or take local treatment, there are plenty of chances for such infection, in addition, of course, to that of coitus. We often find that the colon bacillus has spread to the vulva, urethra and vagina in these ways. In some cases the germ may be introduced into the vagina without having gone through the individual's own alimentary canal, but in view of the comparative infrequency of carcinoma of the skin I should say that such cases must be rare.

Infected feces are liable to contaminate the soil in manufacturing districts where the sewage is imperfect, and the fecal matter is not properly disposed of. This is particularly true in such neighborhoods as those in which mechanics live. Vegetable gardeners and small farmers near large centers have been known to use human excrement as manure.

4. Those who are most subject to carcinoma are those who work the most in dirt and eat the greatest variety of food. Thus chimney sweeps, industrial laborers in large town, city laborers, furriers and carpenters, all of whom have a high rate of mortality, work in dirt and have not always the means nor incentive for frequent washing; while pressmen, compositors and printers, whose working materials are protected from outside contamination, and whose surroundings are such that they can and do wash and clean up when they go to lunch and go home from work, have a lower rate. We can account for the fact that coachmen, city hotel keepers, and hotel servants and brewers have a high mortality, by their food. They eat of food of great variety and that has come from different sources and is liable to be contaminated. They are for the same reason liable to have lesions in the alimentary canal that render them susceptible.

Miners whose work although dirty is almost entirely below the surface contamination, whose food is simple and more or less sterilized by canning, and who in general live in small towns where they are not brought in contact with the great variety of people and infections, have a low death rate from carcinoma.

5. There are probably several factors that have some influence upon the increase of cancer in recent years.

The increase of railroad traffic may be supposed to have some effect in spreading infection through travel of individuals and through the enormous amount of cold storage food that is carried everywhere. Some of the travelers and some of the food must be infected.

The crowding of people in large towns, particularly in industrial centers, has been too rapid and too great for hygienic methods to prevent contagion and contamination except in those infections that are understood. A general recognition of the infectious nature of carcinoma would probably soon result in a decrease of the mortality as has recently been the case in tuberculosis and typhoid fever.

The increase has also probably some relation

to the increase of ulcer of the stomach, gall stones, mucous colitis, appendicitis and chronic intestinal diseases. These affections have become more frequent as a result of the increasing complexity and richness of diet during the past century. Pastries, candies, cakes, sweetmeats and fancy bakery food, nuts, unripe bananas, sweet potatoes, meat of all kinds, etc., are now within the reach of all but the very poorest classes, who do not have cancer as often as those in good circumstances. A hundred years ago sugar was scarce and expensive, and pastry, cake, ice cream, soda water, candy, and most of our sweet bakery stuff was either not invented or was too expensive to be used except in the smallest quantities. But now-a-days the children begin to ruin their stomachs with such foods both at meal time and between meals from a tender age, and those who can afford it are apt to keep it up until they acquire gastric or intestinal pathology and are put upon a diet.

A quotation from the article on sugar in the Encyclopedia Brittanica will show the reasonableness of this assertion. "While in 1700 the amount (of sugar) used in Great Britain was 10,000 tons, in 1800 it had risen to 150,000 tons, and in 1885 the total quantity used was almost 1,000,000 tons." I suppose that Great Britain's stomach had to handle most of this. This was prior to 1885. A few statistical facts by V. L. Price of the National Confectioners' Association will enable us to realize how the consumption of sugar has in recent years kept pace with ulcer and carcinoma of the stomach.

The per capita consumption of candy in the United States is approximately thirty pounds per annum; that means 2,700,000,000 pounds of sweets are sold each year in the United States. There are factories which specialize in the manufacture of marshmallows, of high-boiled candies, such as stick candies, of lozenges, of sugar-coated confections and of chocolates, and some of the factories in their specialties have outputs of 40,000 to 50,000 pounds a day. Other factories make general lines, and many of them produce as much as 100,000 pounds of candy a day. There are also thousands of smaller factories scattered throughout the United States producing from 500 to 10,000 pounds a day.

(V. L. Price, "Candy Making an Art," in the *Chicago Evening Post*, Saturday, Sept 3, 1911.) While this growing complexity of food and abuse of sweets may not be the cause of ulcer, it may have some relation to its increase in frequency.

The fact that the very poor who are crowded together do not always have as high mortality from carcinoma may be in part accounted for by the fact that their food (excluding that which is canned and therefore sterilized), is simple and does not so often produce suspectible foci as that of the more prosperous, and being simple and not brought from many distant sources is less liable to be contaminated with the carcinoma germ.

The fact that carcinoma has been observed to affect the obese and well fed and gouty individuals more often than thin people may be interpreted in the same way. The experiments of Dr. Maud Slye upon mice would seem to favor this view as to the greater susceptibility of the well fed individual.

W. Roger Williams has shown the mortality to be twice as great among well-to-do men having no specific occupation as among occupied males in general (p. 96).

Aschoff has shown that in the Berlin population cancer was of the most frequent occurrence in persons of independent means, living on their income or pension (Williams, p. 354).

Thus an increased local suspectibility due to modern conditions of life and the tendency of any infectious disease, the character of which is not understood to spread, seems to me sufficient to account for the increase after we have deducted the apparent increase due to former erroneous diagnoses.

6. Since duodenal ulcer is a more common lesion than gastric ulcer and yet seldom becomes infected with carcinoma, and since trypsin, which is poured into the duodenum also prevents continued superficial development of carcinoma on surfaces with which it is kept in contact, the question arises whether trypsin, or possibly some vegetable ferment or synthetic imitation, could not be used for the destruction of the disease or the production of immunity. Whether injections of trypsin or a similar substance into and around the carcinomatous mass, or into the afferent blood vessels or into the colon or the general circulation could be worked out so as to be curative, is perhaps worthy of serious thought, if not experiment. The well known work of Beard is significant, although it was used to support a theory and is not conclusive.

7. Dr. Maud Slye has shown that immunity and increased susceptibility may be inherited in

mice, and that in them some individuals exposed always develop carcinoma when local conditions favorable for its development are produced, while others never do. This would seem to explain why the presence of the causative agent in the food will successfully inoculate a chronic gastric ulcer in some patients and not in others. The probability is that most of us take it into our stomachs, although but few of us are infected. A healthy alimentary canal is one of the greatest safeguards against carcinoma, excepting, of course, natural immunity.

The foregoing conclusions have suggested the following recommendations:

1. Carcinoma should be considered an infectious disease.

2. Precautions against the spread of the infection should be taken by the community, as well as by the individuals affected.

3. Foods, particularly fruits and vegetables, should be protected from contamination at their source and in transit. All fruits and vegetables from general sources should be sterilized before being eaten, except such as have a complete covering or hard external surface that can, after a thorough cleansing, be removed. The use of human excrement as a fertilizer should be prohibited by law.

4. The disposal of human excrement in suburban and populous rural and manufacturing districts should be such as to avoid possible contamination of the surface soil. The feces of patients with carcinoma of the alimentary canal and pelvic organs should receive the same attention as those of patients from typhoid fever or cholera.

Women should be taught the infectious nature of normal stools with particular reference to keeping the perineum free from contamination. They should also be taught to spend a considerable portion of their time washing their hands.

5. The number of cats and dogs in populous districts should be restricted, and they should not be allowed to roam about the streets by day or night. The excess should be killed. Means should be taken for the extermination of rats, mice, cockroaches and other vermin. This should have been done long ago as a protection against the spread of other infections.

6. Individuals whose occupations are known to expose them to great risk of infection from carcinoma should be taught that it may get into their systems either through the irritated skin or by way of the alimentary canal. They should be taught to keep the skin free from chronic lesions and should wash their hands very thoroughly before eating, and also to wash and disinfect their hands very thoroughly and change their working garments when they leave their work for the day. All workers in dirt should observe these rules.

7. That all epithelial areas affected with chronic irritation and erosion should be attended to, has already been emphasized by others. An attempt might also be made to prevent infection of ulcerated and eroded surfaces in the alimentary canal. Patients with such lesions should, of course, avoid all unsterilized food that might be contaminated. Whether it would be useful to give a large dose of trypsin or something with a similar catabolic or germicidal action once or twice daily in cases of ulcer of the stomach, or a pint or more of a solution of acetozone or alphozone, or some other non-poisonous substance that might be found to have a destructive action upon carcinomatous cells and parasites, is a question, I think, that deserves consideration.

8. Municipal authorities should put carcinoma upon the list of diseases to be reported in order that the patients may be traced and taught how to take care of themselves and their infected discharges, and that none of those living with them be allowed to handle foodstuffs for the market.

9. The blood of patients with carcinoma should be exhaustively studied with reference to the discovery of something that will increase immunity, for until we learn more about the germ, the establishment of immunity would seem to afford the best hope of preventing infections and recurrences.

10. The time would seem to be ripe for teaching the public something concerning the erroneous notions about diet that are prevalent among the idle rich and prosperous poor in order that they may stop manufacturing the serious forms of gastro-intestinal disease that have of late years shown such an alarming increase in frequency, the seeds of which are sown in adolescence and the fruits of which are harvested at maturity and in senescence. In this way the danger of infection by contamination might be greatly diminished.

11. Women who have not borne children for several years should be warned of the danger of developing carcinoma, and should not only be on the lookout for symptoms, but should submit to a pelvic examination at least twice a year until it is evident that the mucous membranes are healthy and are remaining so.

THE MODERN DIAGNOSIS AND TREATMENT OF CANCER OF THE STOMACH.*

CARL BECK, M. D.
CHICAGO, ILL.

With the progress of medicine and surgery, the treatment of different pathologic conditions changes. Every new invention or discovery in the field, not only of medicine, but any scientific line, changes also the treatment of disease. Although these changes are slow, they may be noticed and there may be a remarkable difference between technic and views even in such a short time as a year or two. It is therefore of great importance that from time to time such advancements should be summed up and brought before associations or assemblies of progressive physicians so that they may not stand still but march onward with the progress. Those who stand in the midst of the battle do not see as much of it as those who are somewhat away from it and have a sort of a review before them. So it is with the man who reviews progressive medicine. The man who is working in general practice is not aware as much of the general progress as the one who makes use of all the advancements, compares them and picks out that which seems to him the most useful and beneficial in some special field.

When we speak of "modern" we always mean the last few years, as the progress is so great even a few years make methods antiquated. In our time, changes come very rapidly. Modern inventions of transportation and communication as telegraph, wireless and the modern advancement of publication have made it possible that such changes are rapidly spread the world over, and consequently we have to review more often than in former times.

When I studied medicine, a text-book, even of such a conservative branch of science as anatomy and an atlas, remained immovable as a text-book for several years, so that a few generations of students could make use of it. In our present day there is a new and better anatomy published every year and the student avails himself of the most modern.

After these initial remarks, it will be understood that the treatment of cancer of the stomach and intestines as it is practiced now in the most advanced places of treatment is to be considered. The present time is not very favorable for progress. War is tearing the scientific world of Europe to pieces. Most of the men who usually spend their energies and use their brains in advancing methods of treatment of disease are spending their time now on the battlefields, trying to save whatever the cruel methods of warfare spare. It is an unfortunate year for science; it is, to a great extent, barren of new thoughts, and countries where otherwise a great deal of scientific labor is performed, are now altogether silent. Hardly do they find enough material to publish their scientific journals. Most of them have stopped publishing scientific papers, and whatever they do get out is more of an excuse if it is not material connected with warfare.

The subject of treatment of cancer, therefore, in the last year has not found a great deal of attention in Europe. It is of secondary importance. Military surgery ranks foremost, and there is so much of it that it obscures the rest of the surgical work. The most modern, therefore, is what is done in this country and some in Germany where, notwithstanding the great strain put on the medical profession, still some scientific work is done.

Cancer of the stomach and intestines, the layman and the press tells us, is on the increase. There is an enormous lot of publications showing conclusively that the cancer numerically increases. It may be that there has been a large number of cancers in some countries before, in some, perhaps, larger, but the modern publicity has made it possible that the world knows about it more than before, and not least of all, is this due to the fact that the physicians have become more educated, that they are better able to recognize cancerous growths of those organs which are not visible or palpable, so that the diagnosis is more frequently made. These facts must be taken into consideration. It has been repeated

*Read before the Southern Illinois Medical Association, Nov. 5, 1915.

so often and proven so often that the only method to treat an ailment successfully is to recognize it early enough before it has produced such destruction in the body that a cure becomes impossible. When a person already has destruction of the liver with metastatic processes in different distant organs, there is no thought of cure, as little as there would be a thought of saving a tree whose branches and leaves were withered and whose trunk is dying out, even if there was enough sap in it to give the appearance of life.

The human being can persist for a long time on very little, as long as the brain with its vital functions and some of the organs like the stomach, intestines, kidney and lungs are working, only to a small extent. There will still be a life, but when the minimum is passed, life will be extinguished. When we receive, therefore, a case for treatment where a large number of metastatic processes are present we might just as well acknowledge that the case is beyond hope.

In the treatment of cancer we may say that the disease can be cured as long as we can remove it. To remove it does not always mean with a knife, but to remove it from the body in some way. The damage done by the cancer is not only a local one but a general one. There are diseases in the body in which the local change of an invading noxa or harmful matter is small but in which the body in general is harmed to a certain extent, so that its functions are encroached upon. For instance: If a person pricks his finger with an infected needle, the local process might be a very minute one, a little redness and a little tenderness, but the microbic changes, the rapid development of microbes and their products are taken up by the body in general so rapidly that the whole system might be in what we call a state of general poisoning. This infringes upon the functions of the body—the appetite is lost, the secretion of the kidney is laid low, the action of the lung is increased to keep the body supplied with oxygen, the temperature is raised, the alkalinity of blood changes, the perspiration changes; consequently, the whole system is put out of gear and if the system can overcome these difficulties and the microbes do not increase to such an extent that they lay the body entirely low, the body will improve, and if we are able to paralyze by some action, like an antitoxin, the activities of the microbes, we will, with one sweep, remove the noxious material and the body will recover. The action of a cancer is different. It grows as a small local trouble. Personally I have the conviction and I have also some proof in my hands that the cancer is due to some material brought into the body from the outside. In our research laboratory we have conducted experiments for some time which prove to us at least conclusively this one fact. I will not go into detail here because it is not the place for it.

Enough may be stated that for me and my associates it is a fact that the noxious material comes from the outside. It remains local for a good long while and although it affects the general system inasmuch as the changes brought about by this local growth will have their effect upon the cells and produce a debris which is again absorbed by the body, and has to be disposed of just like sewage. The effect upon the body is not very serious at first. In fact, it takes some time—months and years—before the body will show the effects of such a constant absorption. Should the development be more rapid, then, of course, the changes will be shown sooner, also will they show sooner when the individual is not in a first-class condition, but on the whole the time from the moment of the beginning of cancer until it develops is quite a long period. This is one of the greatest obstacles for early diagnosis of the case, but also one of the greatest helps for the cure of the case, since it takes a long time for a tumor to affect the body to that extent, that the elimination of these secondary changes would be impossible.

Another interesting fact about the cancer is that it grows from a small point in the shape of what we would call a cone, getting bigger and bigger all the time. To explain this a little more intelligently, I would take the cancer of the lip as an example. It begins with a small hard ulcer on the lip and then spreads in diverging lines towards the chin. It spreads very little as a rule in the beginning in its locality. The people, therefore, regard that small ulcer with very little apprehension and they are in danger of having their whole chin glands and lymphatic vessels through which the cancer grows already affected, when they become alarmed about the lesion on the lip. This is an unfortunate circumstance. The lip is one of those places which the patient has to use every hour of his life. Every

time he eats, speaks, every time he puckers his lips, he is aware of the change. How much more is this danger of overlooking the primary lesion in a case of the stomach or the uterus or the bladder where he has no chance to observe, himself, by any change except by symptoms? For the cure this growth in diverging lines is very unfortunate, because in order to remove this sickness we have to remove the whole cone or block.

Take again the lip for example. When the cancer has affected the glands underneath the chin, we would have to remove, in order to be sure, the cancer in one block, the lip as the apex of the cone and the whole chin underneath, and the bones as the base of the cone, provided this cone does not extend already down to the lower part of the neck, where the removal would be impossible because it would require the largest vessels to be cut and the patient could not survive. The fact that we have to eliminate all the cancerous tissues if we want to get a cure is admitted by the scientists all over the world.

Theoretically there would be two great ways open for us to achieve such an object. One of these methods has proven satisfactory. The other method is still under experiment and while there have been very good results reported, it is far from being satisfactory. The two methods are these:

First: The mechanical removal of the growth, if it is possible.

Second: The destruction of the same by biologic or chemical products.

The mechanical removal is best accomplished with a knife; the biologic way is still under experiment, and it is tried over and over again because it cannot be controlled so well as an experiment. It is difficult to state exactly where it stands. There is a universally accepted fact proven by evidence, that cancer, if removed early before the cone of that infection, of which I spoke of before, is too large or before it is so large that a part of it must be left behind, the operation affords a cure. We speak of a cure when the patient is free from disease after the operation, permanently. Of course the patients remain often apparently free from a recurrence of the disease for years even if the whole cone of disease is not removed, and many such cases have been reported as cures. This is due to the fact that when a small portion of that cone of that disease is left behind it acts in the same manner as the initial cancer and becomes the starting point of a new cone of disease, which often takes a long time because the lymphatics at that portion may be very poor, a circumstance which may be very favorable for the patient, while the lymphatics at the original seat of a tumor were perhaps very good. In such a manner we have sometimes a freedom from disease for years. At any rate, the removal of the largest portion of the tumor is usually followed by the improvement of the patient, at least for a time. This is called a palliative operation and is recognized in the profession as one of the methods of treatment of cancer.

It is a well-established fact that when the largest portions of the tumor is removed, the organism has a breathing spell during which it can recover from some of the bad effects of the tumor, and then fight the invasion of new elements from the tumor with a little more vigor. Three or four operations are sometimes performed on such a case, each time causing some improvement, until ultimately, of course, the patient's vitality is so low that another operation cannot be performed.

Taking these facts into consideration and apply them to the conditions of the cancer of the stomach, we can see for ourselves how difficult matters stand here. In the cancer of the stomach the initial lesion spreads more or less in the stomach for a good long while before it develops into a large cone of secondary cancer. The lymphatics of the stomach are such that they do not favor a very extensive invasion in the beginning. There is only a small number of lymphatic vessels leading to each portion of the stomach and the glands are not so many as, for instance, on the neck or the groin or the abdomen retroperitoneally; therefore, the space of time between the original growth and an extensive secondary involvement of glands and distant organs is quite long. This would be extremely favorable for the treatment of the stomach if we could recognize and diagnose the cancer early, and on this point hinges the whole success in the treatment of cancer of the stomach.

I mentioned before that the lip is a place where the cancer can be recognized very early. In the breast of the woman the cancer is also very com-

mon and can early be recognized, therefore, the cancer of the lip and breast give the best results, not because the localities are different from the stomach; they are worse as far as secondary invasion is concerned, but the recognition of the cancer of the breast and the lip is so early that often the beginning of a cancer is already attacked by the surgeon before it has even had a chance to develop a cone of invasion. Also the diagnosis of cancer of the uterus begins to get into that shape since the propaganda of early diagnosis by the physicians have been systematically made. One cannot help acknowledging the great service of some of our scientists, gynecologists and pathologists, like Winter in Germany and Bloodgood in America. They have called attention to this early diagnosis and have constantly emphasized it until they have driven it home to every man to examine the uterus frequently after confinements for lacerations which appear suspicious; to excise a little portion of that uterus if necessary. Nevertheless, the diagnosis is not early enough. I may confess that in 26 years of surgical practice I have never had a chance to operate on an early case of cancer of the womb which I would regard as initial cancer except in a few cases in which I have made a diagnosis myself.

The next question to discuss would be: Is it possible to diagnose a cancer of the stomach early enough?

If it does not produce enough symptoms, how are we going to know that there is a cancer of the stomach? When the symptoms are such that there is an absence of hydrochloric acid, a bleeding from the stomach, or blood in the stool or even a palpable tumor through the skin; then we have no more an initial case; we have already an inoperable case, in all probability, but fortunately for most of the patients, cancer develops upon the base of ulcers and ulcers are a hobby for the surgeon. We have become so dexterous in our technic on operations of the stomach that we can treat the stomach like a lip; that is, we can look into the stomach with impunity. We do not need to do what some of the scientists advocate—to introduce a long tube into the stomach and at the end of which there is an electric bulb and look into the stomach like we look into the bladder or the rectum. This method is not only very difficult but very dangerous, since the introduction of a nonflexible tube through the esophogus is not an easy matter, and since we cannot see the whole lining of the stomach. Opening the stomach, making a little hole into it and introducing the tube directly, cystoscope or, still better, look into it directly, is far more advantageous. I have a number of times used this method to look into the stomach for an ulcer.

I have developed an apparatus through experiments. One was a little cumbersome; it consisted of three small electric lamps at the end of a tube, an apparatus which I constructed myself. The difficulty of this apparatus was, however, that it had to be connected with an electric lamp and it easily got out of order, as most of these apparatuses do, and are not working just when you need them. I gradually, however, changed the apparatus so that I had a small portable lamp in a handle, something as is used now commonly by the physicians to look into the throat. I had the idea at first that it was necessary to inflate the stomach in order to make it visible through this small apparatus for inspection, and it is really better, but it has its disadvantage, that when we begin to inflate it the difference of temperature on the outside produces a coat of sweat or vapor on the glass so that the glass becomes dull and the inspection becomes very difficult. I have, therefore, used it without the glass in most of the cases, drew up the stomach and lit the lamp and looked inside. I have found even this apparatus lately unnecessary. All I do is make an incision into the stomach, grasp the borders of the incision with what we call the Tuffier forceps and look directly with the naked eye into the inside. We can detect any kind of ulcer in this manner if we are not able to detect it with our fingers by palpation. Some of those ulcers are very superficial and are not infiltrated, consequently escape our observation, if we depend on our palpation alone. I, therefore, recommend very highly the direct inspection of the inside of the stomach for ulcer and I also recommend the inspection for the beginning cancer.

A cancer which is already of the size of a penny or the size of a dollar is, therefore, a well-established cancer. It gives an excellent prognosis for cure, for at that time it still may be a local process.

When should we do these operations for examination is the next question?

In every case where the people begin to complain about stomach trouble which does not yield to the ordinary dietetic methods, especially if they are over 40 years of age, although I have seen some rare cases of cancer of the stomach between 20 and 30. When a person, therefore, begins to have chronic stomach trouble, it is much easier, much less dangerous, much less inconvenient and much safer to open the stomach and look into it than it is to treat the patient with all kinds of remedies which have no value until we can palpate a tumor, whereupon we say, "Now the patient has a cancer," as if he did not have a cancer when we began our treatment. There are, of course, a large number of methods of diagnosis, among which the x-ray in our times plays an important rôle, which should be used at any rate, because the diagnosis of a cancer and ulcer can be made accurately by using these methods beforehand and the opening of the stomach might not be necessary in cases where other diagnosis is accidentally made which has been overlooked. Exploration of the stomach is one of the best and the only safe method to make a correct diagnosis. Besides, if found, the cancer can immediately be treated.

The next point to discuss would be the methods which we are employing to treat the case of cancer after we have diagnosed it.

Operative Technique.—The method of operation on cancer of the stomach does not differ materially from the method of operating on a cancer of the breast or lip or the uterus, as I have said before. The tumor must be removed in one block from the body. Sometimes we start with a periphery to remove this block, as in a cancer of the lip, where we begin the operation with the glands on the neck, and gradually lead up from the broad base of the glands to the narrow point of the cancer of the lip, but sometimes we begin at the cancer and go downward to the glands.

In breast operations we can use either way very satisfactorily. We begin either at the cancer of the breast and dissect gradually up to the glands in the axilla or we begin at the glands of the axilla and remove the cancer as the last, but in one piece. In the stomach we can do well either way. There is one thing, however, to be said; that is, that the cancer is not operable any more when the glandular infection is far advanced. As soon as we can see and feel metastatic glands in the retroperitoneal space, we may be sure that the cancer has progressed so far that a radical removal is out of the question. We can then only hope to remove the largest portion and thereby retard the development of the cancer in the body and give the patient a palliative result.

The glands which drain the stomach are situated in the ligaments of the stomach in the gastro-hepatic or in the gastro-colic ligaments. This is very favorable for the extirpation. All we need to do is to clamp off between Doyen or similar clamps, the cancerous growth, far enough within the healthy tissue, resect it, suture both ends of the resected stomach, and make a gastro-anterostomy. The way we go about this in detail is individual, and while one method gives excellent results in the hand of one operator, the other one gives the best results in the hands of the other. That is all a matter of habit, experience and frequent use. The worst feature in these operations is that a man who has not acquired much experience experiments a great deal, uses every time another method, and never becomes familiar with any one enough to call it his favorite. This brings me to a point which I cannot emphasize too often; "that the operation should not be performed except by the men who have had a great deal of experience which they have gained, either as assistants at the side of a master surgeon before they started to operate on their own responsibility, or those who, by exceptional training, have gradually developed this as a specialty." The ordinary surgeon who has, perhaps, a chance to do an operation of that kind once or twice a year, never can make a success of it because within a lifetime he probably operates on only as many cases as the expert operates on within half a year. How can he develop operative ability, not to speak of the judgment in the individual case? These operations therefore will remain always properly in the domain of a specialist, a man who has years of experience in intestinal surgery and should, therefore, never be the domain of an ordinary surgeon.

When I spoke of the method of operation, I alluded to the most frequent seat of carcinoma,

namely, at the pylorus. There are carcinomata in other regions of the stomach, although not quite as favorable for the resection as the one at the pylorus. They must be treated by individual methods. The carcinoma of the small curvature of the stomach, for instance, is one of the most difficult cases to be treated. It requires a resection with a plastic of the stomach because the simple resection between clamps is not sufficient. The best way in this case will be to resect the carcinoma just like a tumor of the skin, starting at one point within an inch from the tumor and cutting it out from the stomach, ligating every vessel of the stomach, and finally removing with it the gastro-hepatic ligament with the glands. Then we have an open stomach without its upper wall and vessels. We have to supply this defect with a covering consisting of stomach, and that is best done by a plastic flap operation, as I have described many times before. I have not had a chance to do these operations very often because the tumors of the small curvature are not so frequent as the others and when they are diagnosed they are in such shape that radical cures are not very likely to be affected. Altogther I have had only two cases in the last four years in which I could make a safe and good resection of the small curvature of the stomach.

Still rarer is the cancer of the cardia and there it requires an expert to achieve a radical resection. When we make a diagnosis of a cancer of the cardia and we find that it is operable, and I must confess that I have found it only once, we have to make an operation somewhat similar to the resection of the spleen; that is, a temporary resection of the lower chest wall (Madelung). I have, as I said, done this operation once successfully. The patient recovered from the primary operation. She died, however, a year after from a very extensive carcinoma of the retroperitoneal space. The operations on the stomach for removal of malignant growths have been very much facilitated by the use of the Payr clamps, which allow us to make a very clean resection. I also have been anxious to use the instrument of Hueltl of Budapest, but have not been able to obtain it. I have seen, however, a very good resection with the instrument at the hands of Meyer of New York, and it impressed me as a very favorable method, in the hands of an expert, although it looked almost like a formidable machine gun that he was using on the stomach, so much machinery that the average surgeon would be afraid to use it. When the operation, however, was finished, it looked very clean and very satisfactory.

Results.—About the results of the operations we could speak at some length. We would, however, have to bring statistics which not only include ours, but other people's cases, and here is a great difficulty because the personal equation and the personal amount of experience and judgment count a great deal; also the number and the amount of cases that a man has to operate on and the indication which he puts to himself as a guide. Most of the operators of great experience are improving their results every year, although they stretch their indications every year with the increased experience.

About 8 years ago I made a post mortem on one of the cases which I had operated upon 15 years ago which had been free from cancer of the stomach for 7 years, and I thought the cancer was recurring after 7 years when she developed an intestinal obstruction. To my surprise, I found no trace of cancer, but this obstruction was due to a simple scar formation and the patient would have certainly recovered if I had operated upon her for this obstruction. I removed the whole intestinal contents from that patient and sectioned especially the retroperitoneal glands and found no trace of carcinoma. This case was a proof to me that we can absolutely cure a patient of cancer of the stomach.

THE IMPORTANT ELEMENTS IN THE LEPROSY QUESTION IN THE UNITED STATES.*

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There are two propositions relative to leprosy in our country which, if true, it will be agreed, are of utmost importance. These are: First, total eradication of the diseases with us would eventually be accomplished by the establishment of a federal colony for the segregation and care of existing lepers, and, second, fear of leprosy by the people is found everywhere, and is so intense

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as to constitute a veritable lepraphobia, which has worked great hardship to the unfortunate victims of the disease, and has seriously interfered with the rational treatment of the leprosy problem.

The validity of the first proposition will be evident after hearing the other papers of the evening on the clinical, bacteriologic, pathologic and sanitary aspects of the disease. The elaboration of the second proposition will comprise the substance of this paper.

The fact of the existence of an extraordinary fear of leprosy will not be questioned, but the reasons for that fear may not be so apparent. Everyone is familiar with the sensational manner in which the newspapers exploit the discovery of a leper; which fact, however, deplorable as conducive to the maintenance of a state of popular ignorance, is nothing more than a consistent carrying out of the principle of "news value" for the people. What the people want the newspapers aim to give. Every medical man knows how the unfortunate leper is hounded when his condition becomes known; how lacking in humanity is the treatment accorded him by the community; what needless expense the fear of him entails upon the city, county and state, and how the sanitary and police authorities are handicapped in the sane and honorable management of the situation.

The intensity of this fear cannot be accounted for on the ground of the disease itself. Leprosy is apparently not easily conveyed from one to another, unlike many other infectious disorders which are both common in occurrence and lethal in tendency. It may be disfiguring, but so also may be syphilis, tuberculosis and many other diseases of the skin. It is doubtfully curable, but this quality it shares with certain diseases which are everywhere prevalent. In fact, there is not enough in the disease per se to account for the universal lepraphobia which exists today and which has come down as an heritage of the centuries. As an adequate cause something must be sought more potent in action and widespread in influence in both time and place, than the disease itself, or the knowledge of the disease.

This adequate cause is to be found in the biblical accounts of leprosy, for in these can be discovered all the requisite factors for the creation and maintenance through the centuries of a firmly grounded, universally distributed fear of leprosy.

The Bible, as the foundation literature of the Jewish and Christian religions, has been and is the most widely read book in the world. Its religious purpose has made belief in its contents imperative for millions, and the meaning of the contents has, for the most part, been determined by the path of least resistence, namely, literal interpretation. The leprosy of the bible is depicted plainly as a most dreadful affliction, easily communicated to others, demanding the complete separation of the victim from among the people. Hence we have operating through generations and centuries, because of the biblical accounts, a universal and more or less imperative belief in the awfulness of leprosy, this quality being arrived at by the simple process of literal interpretation of the scripture records.

That this literal interpretation of the passages in the Old Testament relative to leprosy is unwarranted and fallacious can be demonstrated fully. That the *zaraath* or "leprosy" of the Hebrews was not true leprosy, and that its significance was religious rather than medical, can also be shown. In fact, when the real meaning of biblical leprosy is known the *raison d'etre* of lepraphobia vanishes.

True leprosy is probably a very ancient disease. It is said to have originated in Egypt, "on the banks of the Nile." Early references, however, are rather uncertain. In the second century B. C., leprosy seems to have been described by the Greeks under the name *elephantiasis*. The term *lepra* appeared in the fifth century B. C. and was applied by Hippocrates to conditions of the skin characterized by scaling. The Greek historian Manetho, in the third century B. C., before the definite description of *elephantiasis* (true leprosy) and probably without knowledge of that condition, stated that at the time of the exodus of the Israelites from Egypt there were 90,000 among them afflicted with *lepra*. It is obvious that the Hippocratic *lepra*—scaling skin diseases—was meant. Not many years thereafter the translation of the Hebrew scripture into Greek—called the Septuagint—was made. In this the Hebrew term *zaraath* was rendered *lepra*. It cannot be doubted that the Hippocratic lepra was understood.

Therefore, at the opening of the Christian era, we find in use the terms *lepra graecorum*, referring to scaling skin diseases, and *elephantiasis*

graecorum, meaning true leprosy. We find also that the ancient Hebrew word *zaraath* has been given the meaning *lepra graecorum* by translation, and that the latter in return takes on the dreadful qualities which the biblical descriptions attribute to *zaraath*. From this time on, where ever the Septuagint version penetrates, the term *lepra* stands for a thing greatly to be feared.

In the first century of the Christian era true leprosy—*elephantiasis graecorum*—began to appear more frequently in Italy as the result of importation from the south and east. With the decline and fall of the Roman Empire the disorder spread over Europe and became so prevalent that in the seventh century leprosaria sprang into existence for the housing of the victims. By the 13th century nearly 19,000 of these leper houses were said to have existed in Europe and the British Isles. Laws of the most stringent sort were enacted, bearing on every social relationship of the leper, and he became as much an outcast as did the Hebrew victim of *zaraath*.

But it is highly improbable—it is indeed almost unthinkable—that the greatly feared "leprosy" of the middle ages was ever and always true leprosy. When one considers the confusion that existed among physicians concerning the disease, together with the crude medical notions that made up their general stock of knowledge; when one remembers that ignorance, superstition, war, famine, sickness, insanitation, general misery and privation, were the lot of the people at that period, it is reasonable to assume that many diseases of repulsive appearance were grouped with leprosy, and were put away in the leprosaria. Further, it is difficult to believe that sanitation and a desire to stamp out "leprosy" were the forces which led to the establishment of the leper asylums; a more plausible explanation is that gross fear of all repulsive skin conditions was the motive power, tempered somewhat by certain humane considerations.

One effect of the confusion in the clinical accounts of leprosy from the time of Celsus to the 15th century was to fix upon the term *lepra*—originally referring to scaling skin conditions—the significance of *elephantiasis graecorum*. By the sixth century so many terms descriptive of leprosy had been introduced that one is forced to conclude that the true disease was not clearly distinguished by the physicians of the period from a confused conglomeration of skin disorders. As intellectual darkness settled over Europe, medical science was kept from extinction by the Arabian physicians. But, with respect to leprosy, these men, too, contributed to the confusion which enmeshed the subject. In their writings they considered the *dal fil* of the Arabians (which is the *elephantiasis* or *Barbadoes leg* of today) equivalent to *elephantiasis græcorum* or true leprosy, the mistake arising from the similarity of idea in the two terms, since *dal fil* means literally "elephant's foot." *Djudzam,* their designation for true leprosy, they rendered *lepra*. Thus after nearly twenty centuries of use and misuse, three originally distinct conceptions, viz.: *elephantiasis græcorum, lepra græcorum,* and *zaraath,* come to have a significance in common, namely, true leprosy. It is not surprising, therefore, that *zaraath* is rendered accordingly in the modern versions of the scriptures, and that the terrors of *zaraath* are thereby carried over to leprosy and are felt wherever the Bible is read.

But the *zaraath* of the Hebrews *did not signify leprosy.* It was, instead, a generic term covering a variety of skin disorders which were religiously rather than medically important. Time will not permit a full presentation of the evidence substantiating this assertion, but the principal points may be set forth briefly.[1]

First, it is a mistake to credit the ancient Hebrews with great medical knowledge such as would be implied in the acceptance of any part of their laws as a truly sanitary code. Moses was a keen and capable leader of a nomadic nation not yet in the agricultural stage of evolution and so relatively low in the scale of civilization. That he was a great sanitarian, skilled in the recognition and prevention of harmful diseases, is scarcely reasonable. The sanitary features of the Levitical law are accidental rather than intentional.

The root meaning of zaraath is "to strike suddenly," and in many places in the Old Testament it is used to express the idea of punishment by Jehovah. In the 13th chapter of Leviticus it appears as a designation of skin disturbances supposedly leprosy. The descriptions of these

1—For a more complete discussion of this point see the author's article on "The Leprosy of the Bible in Its Medical and Religious Aspects," The Biblical World, Vol. XXXVIII, Nos. 3 and 4, 1911.

conditions—thirteen in all—will be found on close inspection to be too meager and repetitious to have value as delineations of a disease entity. Practically the same descriptive terms are applied to conditions in garments and in the walls of houses, which conditions were also *zaraath* or "leprosy."

The isolation of the "leper" was for a brief period only, far too brief to have value as a measure looking toward the stamping out of such a disease as true leprosy. The cleansing of the leper was by formulæ and procedure exactly like those for the cleansing of the people of Israel from their sins, and, therefore, was a religious rather than a medical matter.

The "unclean" of the Levitical code had no reference to the meaning which we attach to that word. It signified instead, "unfit to associate with the worshippers of Jehovah," or "unfit to participate in the worship of Jehovah." The "law of leprosy" was for the purpose of determining "when it is clean and when it was unclean," that is, it was to determine the fitness or unfitness of the individual for the worship of Jehovah. This "law of leprosy" is found in the midst of an extensive code—chapters 11 to 16—which deals with uncleanness in all its aspects.

The Hebrew notion of the "unclean" is but an expression of a religious principle called "taboo." This principle is as old as the human race and is found in practically every religion, past and present. The taboo idea is essentially this: That there are things which cannot be touched without some harmful quality passing to the agent by the contact; and the person or thing so affected can convey the same disability to other persons or things by contact. Taboo objects are of two sorts, the holy and the unclean.

Zaraath was, therefore, merely a designation of certain disordered conditions of the skin which in the minds of the Hebrews rendered the person afflicted "unclean," that is, unfit to worship Jehovah, and the victim was not allowed to mingle with others *lest they too, by contact, be made likewise unfit.* It is highly probable that many skin diseases were in the list, and among them may have been the *elephantiasis* of the Greeks. One condition at least was simple *dermatitis calorica* (Leviticus XIII, 24, American Standard Version). *Vitiligo* and *morphea* may have been in the group. Hippocratic *lepra* was probably included. *Zaraath* affecting the head was especially serious, because the head has been regarded as sacred by many primitive peoples. Whatever the offending eruption may have been, it was regarded as terrible affliction sent by Jehovah, barring the victim from access to Jehovah, and, therefore, something that filled the hearts of the Israelites with unspeakable dread.

That the Hebrews had no idea of leprosy, as such, and its contagiousness, and that *zaraath* had a purely religious significance, is well demonstrated in the rabbinical commentaries on the Levitical law found in the Talmud. Here we discover, among other interpretation, that "leprosy" in a garment means nothing to the gentile possessor of that garment, but the Hebrew purchaser must be careful in buying it lest the leprosy pass to him; that the skin of sea animals does not become leprous; that the leprous bridegroom is free from his leprosy for the seven days of the wedding feast, and that twenty-three ends of members of the body do not become leprous from "raw flesh." This last is significant since according to it a true leper with ulceration of the digits would be clean! Other items equally illustrative could be cited from the Talmud and Mischna.

To recapitulate, with reference to present-day lepraphobia:

The disease itself is not sufficient to account for the intensity of this fear. It is due, rather, to a misconception of the accounts of biblical "leprosy," these having been read and literally accepted by many millions from biblical times to the present.

This misconception has arisen gradually, largely through misunderstanding of terms and faulty translation from language to language.

It is not certain that true leprosy prevailed among the Hebrews; Hippocratic *lepra* was probably found with them.

The Septuagint gave Hippocratic *lepra* the meaning of *zaraath*, and thereby made it a thing to be feared.

During the early and middle centuries of the Christian era, by virtue of circumstances, true leprosy, *lepra* and *zaraath* became confused and finally identical in meaning.

During the dark ages "leprosy"—which included true leprosy, scaling skin conditions, and probably many sorts of repulsive skin disorders—

became very prevalent and was feared to such a degree that thousands of leper asylums were established as refuges. With the dawning of better knowledge in medicine this "leprosy" vanished almost completely.

The fear of leprosy today is but a continuation through the centuries of the fear which 2500 years ago attached to the *zaraath* of the Hebrews. Intelligent efforts to remove this popular fear must take cognizance of this fact and must endeavor to make plain the true (religious) significance of *zaraath* of biblical times, since therein will be found the tap-root of modern lepraphobia.

THE CHRONIC RUNNING EAR.*

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The chronic running ear is simply a continuation of the acute running ear, the causes of which are those of catarrh in any other part of the body. We are all catarrh specialists together, in the sense that a great part of our work and much special attention is paid to the treatment of inflammations of mucous membranes in one part or another of the body. These catarrhs, so-called, consist of irritations or inflammations of the mucous membrane coming from the reaction between the defensive forces of nature and the pathogenic microbes. Of these, by far the most common are the following, probably in the order of their frequency: The pneumococcus, staphylococcus, streptococcus, bacillus influenzae and, to a less extent, bacillus diphtheriae, pyocyaneus and many other pus forming microbes. The infections of scarlet fever and measles are also very common exciting causes.

Infection attacks the middle ear principally in one of two methods: First, and most frequently, by extension upward from the throat through the Eustachian tube into the middle ear cavity. Second, and this distinction is clinical rather than pathological, in the more general infections, where the catarrhal trouble attacks not only nose and throat, but the ear and many of the sinuses at the same time, as in the typical grippe, whether pneumococcic, influenzal, streptococcic, staphylococcic, etc., in acute infectious diseases such as measles, scarlet fever, smallpox and others.

Whenever an otitis runs into the chronic form, there must be one or more of three factors contributing to this. First: There may be continued local irritation, as the presence of diseased adenoids, post-nasal discharge, pressure from polypi or other tumors. Second: There may be, and usually is, a condition of poor drainage and ventilation; thus the Eustachian tube may have been nearly closed from former catarrhal thickening; the disease may have located in the attic of the middle ear, or it may have extended not only to the middle ear proper, but to the antrum of the mastoid and even the ultimate mastoid cells. Third: As in any other chronic condition in any other part of the body, there may be a decreased resisting power of the general system, notably as in tuberculosis, many forms of anemia, general weakness from rundown condition after sickness, or accompanying any form of systemic trouble.

The pathology of these catarrhal attacks need not be here gone into, merely calling attention to the fact that in the majority of the chronic catarrhs the germ at fault is usually found well below the surface of the membrane in the various mucous glands.

It is unnecessary here to mention the symptomotology of the chronic running ear. The presence of the continued or recurring discharge makes the diagnosis. When this discharge is examined with the microscope it may be found to consist merely of mucus and pus cells, where none of the infecting organisms are found, or these germs may be easily discovered in a smear. Much importance attaches to the germ that is causative in these cases. Along with a search for the exciting organism, a smear should be examined for the presence of bone detritus, as it is above all necessary to know whether the infection has begun to destroy the bony tissue itself. Also one should be constantly on the lookout for the presence of cholesteatoma.

Many a case of otitis can be recognized as of chronic character from the very inception. Other cases so simulate the typical acute case that one has no means of recognizing on the start whether it will heal promptly or go into chronicity. The acute running ear, under proper treatment, should heal in from two to three weeks, only rarely taking any considerably greater time. If, then, such an otitis should continue for three weeks in spite of lancing and wick drainage, the doctor is

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justified in proceeding as though he knew it was to run for an indefinite period.

As regards the treatment, everything depends upon what the cause may be that keeps up the discharge. Just as in a case of vaginal leucorrhea, you may cure the inflammation by local applications, or be compelled to follow it into the cervix, urethra, endometrium, or possibly resort to tubal operations before the discharge is stopped; so with the chronic running ear. In the first class of cases, those caused by inflammatory adenoid trouble or the persistence of discharge from nasal catarrh across the mouth of the Eustachian tube, it will be at once apparent that the underlying condition must be rectified. The adenoid gland, if enlarged or if diseased, no matter how small, must be thoroughly removed. All conditions of the nose keeping up a constant discharge, such as hypertrophy of the turbinates, deflection of the septum, sinus troubles, whether accompanied or not by polypi, should be properly remedied. After these various operations the doctor can with benefit paint the mouths of the Eustachian tubes with silver nitrate solution or use the Eustachian catheter and inject, after inflation, a little 2 per cent camphor menthol, or both of these treatments. It will be found in a great many cases that the mouth of the tube is so sensitive to pressure of the tip that more can be done by simply painting with astringent preparations and using Politzer's inflation than by the use of the catheter. Much, however, depends upon the individual skill of the doctor in the use of this instrument. In connection with this treatment I have found much benefit to be derived from certain antiseptics in the external ear; this, however, only when the perforation of the drum membrane is of such size as to allow fair access to diseased parts.

One can draw out by an aspirating apparatus most of the discharge from the tympanum, and both through the Eustachian tube and the external canal the little cavity can be well filled with camphor menthol solution. In more stubborn cases after aspirating the pus I frequently inject the middle ear with silver nitrate solutions, in strength of from 5 to 10 per cent. In other cases, and often following the preceding treatment, the use of nosophene powder, which dissolves in the acid medium of the pus and finds its way pretty thoroughly to most parts of the diseased membrane, has given me quite good results. Various other antiseptics, as for instance scarlet red, may be used. I would warn against the common practice of irrigating the canal of the ear with boric acid and other solutions. I believe that many a chronic running ear can be kept up by washings that would dry shortly under wick drainage.

It is comparatively rare, if a doctor is careful in his treatment, to find these simple cases of chronic catarrhal otitis that will not heal in a reasonable time. Unfortunately, however, it has been my experience that the overwhelming proportion of the cases are not so simple as this, that the disease has not only extended to the middle ear, but has involved the mastoid antrum and usually the entire mastoid cavity.

I make it a practice, and advise it to others, to have an x-ray examination made in every case of suspected chronicity. This, if properly done, seldom fails to show a distinct blur over the region affected. A thoroughly competent skiagrapher is essential in this work. I will not attempt to quote statistics, for I believe that nothing less than several hundred observations from various operators can give a fair estimate, but in my own practice more than four out of five cases of chronic otitis have shown under x-ray distinct evidence of mastoid inflammation. In such cases, one may or may not uncover a history of a typical mastoid attack. You are all familiar with the time honored descriptions of acute mastoiditis and recall the symptoms of pain on pressure over the mastoid antrum, fever, redness of skin, tenderness behind the ear, of the auricle forced forward by the inflammation forming behind it, and all specialists at least are familiar with the supposed pathognomonic symptom of sagging of the posterior superior canal wall. One must be on the alert, for perhaps only the last symptom may exist, and that to so slight a degree as to be noticed only by the trained aurist and usually only during an acute exacerbation of a chronic mastoiditis. The history may be extremely deceptive. Mastoid pain is frequently overlooked in the general headache or neuralgia. Perhaps the attending physician has not searched particularly to find the slight difference in tenderness over mastoid tip or antrum, I would emphasize the fact that just as in a large proportion of the cases of sinus trouble which cause the chronic discharge from

the nose, so in the chronic running ear a distinct mastoid inflammation may have existed for years without any of the ordinary symptoms named in the average text-book, excepting discharge. Pain over the mastoid is a symptom only of pressure, and if the cortex is thick and the pus has not worked through to the periosteum, absolutely no tenderness may be felt even on firm pressure. Redness and swelling of the skin is, of course, a symptom of external periostitis. In other words, the pus is already working through the external wall. Subjective pain is a symptom of pus under pressure. If this pus is formed in sufficient quantities to cause pressure upon the delicate nerve endings in the mastoid or middle ear, the patient may have severe pain. If, on the contrary, the drainage is free enough to carry off the pus as fast as it is formed, there may be no suffering whatever. On the other hand, pain persisting after proper lancing of the ear is very suggestive of mastoid trouble. It is not at all uncommon for perforation through the inner table of the skull to occur with so little pain that the patient does not recall it. I might also mention that very many physicians have made the mistake of diagnosing the external redness and swelling of a furuncular abscess as mastoiditis. An expert should not make this mistake, but no doctor who makes it a point to use x-rays early will ever be caught napping in this fashion.

Where, then, we find a chronic running ear that is kept up by the discharge from an infected mastoid cavity, and I would reiterate that these cases are the average ones that we see, it is futile to waste our time on ordinary treatment through the canal. These cases that run for months and even years are almost inevitably chronic mastoid infections. If cured at all by nature, it is usually by the slow process of complete sclerosis of the mastoid cells. The doctor who waits for this waits also until all effective hearing is destroyed, to say nothing of running the very great chance of brain infection. These cases require surgery and it has been a very great satisfaction to me, in my practice in the last good many years, not only to see the chronic discharge entirely disappear, but to find the hearing increased by from one hundred to one or two thousand per cent after mastoid operation.

The treatment of infected cavities in any part of the body is the same—drainage—and I believe that when that has been thoroughly effected most other work is apt to be meddlesome. When the middle ear has become the drip cup to an infected mastoid, it is foolish to drain only the drip cup, and laughable to merely clean away the leakage from this drip cup into the external ear. Drainage must be employed where the discharge can be drawn away harmlessly, instead of allowing it to ooze over the most delicate part of the whole conducting mechanism, the inner membrane. No one hesitates about cleaning out an abscess of the neck; why should be hesitate over one in the mastoid cells? The operation, done in time and by skilled hands, is practically devoid of danger. A slight scar and depression hidden behind the ear is absolutely nothing as against the increased thickening of the inner membrane and anchylosis of the stirrup-bone, which means increasing and incurable deafness.

As to how much can be promised through operation in these cases, a little investigation is necessary. In the majority, perhaps, of these chronic running ears there are intermissions when the discharge entirely stops. If the hearing during the intermission is better than while the ear was running, you can confidently promise the patient that a simple mastoid operation will make permanent at least as good hearing as he had during the intermission. In the rarer cases, where discharge is continuous, a man must be guided by various tests by forks, washing, the Eustachian catheter, etc., but practically always improvement can be promised. The cases in which no improvement comes from simple operation are those where the ossicles have become anchylosed on account of the chronic inflammation extending around them. In such cases, perhaps more can be promised from the radical operation. In my experience in the last twenty odd years in this specialty I have found but one case where there was a fair amount of hearing before operation that was not improved by simple mastoid exenteration. In this case I found what the x-ray prepared me for and what I told my patient possibly existed, a complete sclerosis of the entire mastoid cavity, leaving only a small antrum, which was filled with well organized granulations. This case had been running for twenty years, and I secured no improvement either in discharge or in hearing, but it is the only such case in my experience. Attic perforation has since led to radical operation and cholestea-

toma has prevented me getting as yet a complete cessation of the discharge. I can report others of fifteen or sixteen years standing in which the hearing has been improved four or five hundred per cent and the discharge either entirely stopped or reduced to an insignificant amount.

The continuance of some discharge for a few weeks after a simple mastoid operation is rather the rule in cases where the ear has been running for a long time, i. e., for a year or more. This comes from involvement of the attic of the tympanum, which, of course, in the simple operation is not touched, yet I emphatically protest against the too frequent use of a radical operation in these cases. In my own practice I reserve this procedure for cases where I operate to save life or where there is no chance of improving hearing. Not that the radical mastoid does not frequently temporarily improve hearing (in fact I do not now recall a single one that I have done that has not given improvement for a greater or less time), but almost inevitably in such cases, when the ossicles and the entire drum membrane have been taken away and the diseased lining of the tympanum has been curetted, the membranes of the oval and round windows become gradually more like the skin of the surface of the body than the delicate membranes of the ear cavities, so that in the course of a year or so the hearing is often fully as bad as, and occasionally worse than, before the operation. I believe that not one simple mastoid operation is now done where there should be a hundred, but, on account of delay, far too many radical operations become necessary; in my own practice about one out of four.

This view should not in the least militate against the employment of this more thorough operation in the case of danger to life, from extension of the inflammation through necrosis of the bone to the meninges, causing meningitis, sinus thrombosis or brain abscess. It must never be forgotten that the inner plate of the mastoid cavity is distinctly thinner than the cortex. Especially in young people and in cases of large celled mastoid cavities is there very great danger of perforation internally into the skull cavity. How frequent these perforations are is perhaps somewhat of a guess. My reading, as well as my experience, would incline me to say that probably in one-tenth of all cases of marked mastoid involvement there is sooner or later extension to the inside of the skull. Certain forms of extension inward, such as subdural abscesses, frequently cause no symptoms whatever and are found only on operation. Nevertheless, they constitute a very great menace to life and if not promptly drained, usually extend and cause general or basilar meningitis, leading to death. Mastoid involvement is probably the commonest cause of meningitis.

In examining specimens you will notice that the cells of the mastoid cavity are, as a rule, larger at the tip of the process than in other regions, also that each mastoid cell drains through a very narrow opening into the cavity of the antrum. Thus it takes but little inflammation to close the drainage channel of one or more cells, and we have identically the same train of symptoms which follows the swelling of the mucous membrane of the appendix. Pus must force its way through this narrow channel or cause necrosis of the bone. Necrosis will take the path of least resistance, and the pus may work out on the surface, forming first a periostitis and then an abscess behind the ear, or, more frequently, it may burst through into the middle fossa of the skull, forming a subdural abscess and later meningitis, or possibly an abscess of the brain. If it occurs lower, the natural place for it to break will be over the lateral sinus, and we have as before, first a subdural abscess, which, if not promptly drained, will cause clotting of the blood in the vein and this in turn, as soon as it becomes infected, will cause general pyaemia and death. In children particularly, and young adults, a perforation of the tip cells of the mastoid may occasionally occur and pus drain down outside of the skull and form a deep cervical abscess internal to the sterno-mastoid muscle.

It has been claimed by quite a number of authorities that it usually requires about two years for a chronic discharge to lead to necrosis of the bone in the mastoid or tympanic cavities. This depends entirely upon the nature of the germ. Where the infection is of streptococcic origin, necrosis may come in a very few days. Where it is staphylococcic, the necrosis is very much slower, and it is still slower in the pneumococcic infections. Hence the prognosis must be gauged largely by bacteriological examination. There is no time to wait in a pure streptococcus infection and not much where there is a considerable percentage of this germ.

You have undoubtedly all found a very real trouble in influencing your patients for their own good in the treatment of any deep-seated conditions. Almost any person will permit the lancing of a superficial abscess, where he can see and feel the accumulation of pus. While he dreads even this slight operation, nevertheless he will have it done, as he can see the direct necessity for it. But when the abscess is inside of a bone where he feels only the pain, or, still worse, in cases where he notices only a flow of pus, so that his only annoyance is that of a chronic ear discharge, with so gradually increasing deafness as to hardly excite his apprehension, it may be quite difficult to secure the consent of the patient to the only means of cure. I always keep in my office a section of the temporal bone, so arranged as to show the topography of these cells. When I point out to a patient that there is pus down in the tip of the mastoid, that it must push its way through narrow channels the entire length of the mastoid process, through tiny openings into the antrum, then past the narrow chink between the ossicles of the middle ear and the wall of the attic and drain directly over the most delicate point at the oval window, upon the integrity of which his hearing absolutely depends, and that then it drains finally through an opening in the membrane into the external ear; when I show him that the use of medicine in the ear canal, with washings, etc., is essentially attempting to clean house by scrubbing out the vestibule without ever reaching even the halls, let alone the rooms of the house itself, the logic is rather conclusive and I do not have as great difficulty as before in securing his cooperation.

The wonder is often expressed that a little ear can run as long and hopelessly as it does. When one understands the anatomy thoroughly, the wonder is not that the ear runs so long, but that it ever stops. It is a great exhibition of the curative powers of nature to think that in certain cases of this kind nature does secure a complete subsidence of the inflammation and sometimes with a fair amount of hearing left. The chances against effective hearing without operation in these cases are enormous. If the operation is done early, before anchylosis of the ossicles has occurred, or marked thickening of the membrane of the oval window and the rest of the tympanum, the chances of complete restoration to what we would call good business hearing are excellent.

In these days, when this matter is well understood among our better otologists, there is but little excuse for allowing a chronic running ear to persist until the hearing is destroyed. My principal object in reading this paper here tonight is to lead you who are the first men to see these cases to emphasize to your patients what the real cause of the continuance of discharge is, to show them why it is impossible to secure favorable results without operation, and to have this operation done as soon as is humanly possible, so as to avoid the marked interference with hearing, which is inevitable, as well as the serious danger to life, which is in a fair proportion of cases present.

It is inevitable that in disease of this sort there will be certain cases where but little, if any, improvement can be secured. These cases come under several heads. First, there are those where the discharge, either on account of its being markedly streptococcic or of long duration has led to considerable anchylosis and binding down of the ossicles by adhesions. In these cases no results need be expected in the matter of hearing, through simple mastoid operation, although the discharge can usually be at least nineteen-twentieths removed (you can see that clearing away the mastoid cells will remove at least nineteen-twentieths of the secreting surface). In such cases the radical operation may be required, which consists, as you all know, after the simple operation, of removing the posterior wall of the ear canal, the external wall of the attic, the drum membrane with the malleus and incus, and curetting the entire tympanic cavity, excepting the round and oval windows. This, carefully done, should stop all discharge, and as a rule the hearing is at least as good as it was before.

In another class of these cases we have the formation of cholesteatoma, a peculiar growth of epidermis growing into the bone forming pearly masses of epithelium and detritus. Where cholesteatoma is found in the washing it is usually idle to expect complete cure by a simple mastoid operation. It is a sure sign of necrosis and almost inevitably will be found in the attic, as well as the mastoid cavity. When so found it has practically already destroyed most hopes of hearing. In cases of cholesteatoma the only operation to be considered is the radical, as perforation into the brain cavity is very probable.

Again, in other cases of chronic discharge the necrosis may have gone inward into the petrous portion of the temporal bone and led to disease of the labyrinth, usually entirely destroying hearing and leading to serious danger of brain abscess. In these cases again nothing can be done in the way of relieving hearing and nothing but radical mastoid operation with careful treatment of the inner ear will cure.

In case of a chronic running ear where we find the canal of the ear occluded by polypi, you can practically always put it down for granted that there is disease of the ossicles. In these cases, as well, hearing has been very seriously and probably hopelessly impaired, and the simple mastoid will not as a rule prevent the further growth of polyp, although even here stopping of nineteen-twentieths of the discharge may put a stop to further polypus growth.

I have made no mention in this paper of the use of vaccines in the treatment of catarrhal discharge, for the reason that my experience has so far been inconclusive. I hope that the experience of others in this line will be brought out in discussion.

In conclusion, a brief resume.

Persistence of discharge from an ear treated by lancing and dry wick drainage is either, first, from continued infection and poor ventilation through the Eustachian tube, or, second, continued infection from discharge from mastoid cells and attic.

X-ray examination will settle the diagnosis. Early operation on throat or mastoid, or both, with proper after-treatment, will cure in the vast majority of cases. Ordinary washing and treatment with antiseptics in the canal is of itself of very little use.

Many patients will make light of our efforts in their behalf. They must first be educated. A few years ago the man who advised operation for chronic appendicitis was laughed at. Today to neglect to warn in this condition is culpable. People really value acuteness of hearing highly. Danger to life is by no means slight in mastoid infections. Early operative treatment of this "appendicitis of the brain" is just as urgently required as in appendicitis of the abdomen and we will soon be held accountable for not recognizing this condition and advising operation.

7 West Madison Street.

SOME ADVANTAGES OF THE INDIAN INTRACAPSULAR CATARACT OPERATION.*

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In offering some observations on the relative advantages of one cataract operation over others one should not be influenced by a single case, but should know something of the general results in the various operations now in use among experienced men, and with such a knowledge his conclusions are less likely to be biased and his statements faulty.

Anatomically the difference in the operations now in use is quite considerable and the results are the measure of the value of each.

In the operations most men in America perform, section of the capsule of the lens is necessary and the lens is expressed through the rent in the capsule and the latter allowed to remain in position.

The usual operation consists of a flap incision carried up into the conjunctiva and subtending about one-half the circumference of the cornea. This allows more shrinkage of the flap causing a greater convexity horizontally than vertically producing on an average of 3 dioptres of astigmatism in the vertical axis. In some cases it is as much as 6 dioptres, while the incision in the Indian operation is wholly in the cornea except at puncture and counter puncture where it is 1 mm. behind the limbus. The section of the cornea is made at an angle of about 30 degrees forward of the plane of the limbus, and therefore wholly within the clear cornea, this being much more nearly radial allows of less shrinkage in the flap and the maximum astigmatism reported by careful observers is less than 3 dioptres.

The lens may be removed at a much earlier date in the course of ripening in the intracapsular method than would be possible in the operations which open the capsule. We can thus save the patient a period of blindness which is valuable to him.

The complete removal of the lens prevents the formation of iritis due to the presence of lens matter in the acqueous chamber. This usually complicates the average operation where the lens

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capsule is opened. Iritis which results from the presence of lens matter in the aqueous chamber is a serious complication and is painful to the patient and acts as an incitant of adhesions of the iris to any structure it may touch. I have seen it adherent to the opaque capsule in a case operated on in a certain well known clinic. In this case it was a source of pain and irritation for nearly a year. In a second case I saw the adhesions to the flap and to the lens capsule two years after it had been operated on by the older methods.

The removal of the capsule intact as in the Indian operation prevents iritis, there being no lens matter to set up the inflammation.

It is usually painless after the first few hours and gives but little trouble to the patient at any time.

The formation of secondary cataract in cases where the lens has been expressed from its capsule is quite common; not every case to be sure, but it occurs with a certain frequency, differing somewhat with different operators. This requires a second operation which is not welcomed by the patient.

The chimera that is pointed out by those who are ultra-conservative—the loss of vitreous—has been shown to be as infrequent in the Indian operation as in the older operations. Not only so but it is as slight in amount in the Indian operation as it is in the more common operation.

The following cases illustrate the Indian operation and the results obtained:

Case 1. Mrs. Elizabeth A., aged 74 years. Cataract in both eyes, with the right more advanced. Operation by the Indian intracapsular method April 15, 1915. No complications, no pain, patient got 20/25 vision for first post-operative lens after a lapse of five weeks. Is able to read or sew with ease, and can see very well at a distance. I might add that there was less than 1 dioptre of astigmatism in this case.

Case 2. Mr. Geo. W. A., aged 60 years. Total loss of vision in left eye seven years previous to operation; right eye totally blind only two years.

Lens in left eye looked quite yellow. Operated on left eye May 3, 1915, by the Indian intra-capsular method and patient rested well after the first few minutes following the operation.

Patient left hospital after two weeks with plus 10 lens and in the fourth week returned and was fitted to see 20/30 and read J. iv. with ease.

Case 3. Dr. J. J. T. Operation by the flap and capsulotomy method on the left eye two years ago by another surgeon with a history of long painful after treatment and the end result being adhesions to the corneal wound and capsule. Operated on by the Indian intracapsular method May 16. 1915, with a nurse as assistant. Patient complained of some pain for a short time but soon became comfortable and went home from the hospital on the 8th day. No complications. Vision with correction is 20/30.

Case 4. Mr. Joseph G. C., aged 73 years. Both lenses cataractous, the right eye being the more advanced. Operated on right eye July 13, 1915. No complications. Lens a tumbler. Removed it with the hook and spoon with no show of vitreous.

The claim is often made that a trained assistant is necessary to make this operation a success. In my first case I had the family physician to assist me by holding the eye open with the lid elevator, and in the second case my office nurse assisted in the same capacity, while in the third case the nurse who assisted me had not done so before and in the fourth case my assistant was a young physician who had just come into my practice as a student assistant.

DISCUSSION

Dr. Hughes: As to the final result and permanency, the Indian cataract operation is practically ideal as the final result is the cataract is removed in the capsule. The only question that comes up is the question of safety. I was very fortunate a few years ago in seeing Smith do this operation. If I could do it with the skill that he does I would never do any other operation. He said that the loss of vitrous was not so serious as we thought it was, and when it does occur it is not always a serious complication. As in the old operation, we sometimes lose vitrous and there is good results. For those who have done this operation and studied it it is probably as safe as the old operation.

Dr. Lillie, East St. Louis: It seems to me that the chief value of a paper of this kind is to call atention of those who need the aid of an eye man. It appears to me that in hearing papers of this kind on interesting subjects which the general practitioner has now abandoned to the expert the results will be in proportion to the earliness of his diagnosis or the early period which he presents to the skilled man and that I assumed to be the intentions of Dr. Edmondson.

Dr. Edmondson (closing): In studying these cases it was with Fisher of Chicago that I first became acquainted with the actual practice of this kind. When he first returned from Europe I saw him operate at the Illinois Charitable Eye and Ear Infirmary. As far as the trained assistant is concerned I found the only thing they had to do was simply to hold the eye lids open, standing on the opposite side of the patient and holding the eye lid open like grim death. It doesn't matter what occurs, the assistant must hold that open, off the eye ball. I told the nurses to hold them, no matter what happened, and they did it, too—they had this in their mind. The essential thing is

the angle at which you make your incision. It takes less pressure to remove the lens in the capsule than it does to press out the lens and leave the capsule in. I tried that in numbers of cases—just by the sense of touch. It requires less difficulty—less experience than it does to press out the lens of the capsule. We learn in Germany that we can lose as much as nearly one-third vitreous and still have useful vision. But the loss of vitreous is something like five per cent. in the latter methods. It is a mater of being able to hold the retina on the posterior parts of the eye.

SWIMMING POOL CONJUNCTIVITIS.*

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In 1899, Schultz[1] reported a series of conjunctival infections that apparently had their source in a swimming pool. He believed it to be a form of trachoma, which was disputed by Fehr[2] a few months later. On the basis of continued treatment, the latter regarded his cases as a "clinically characteristic, contagious conjunctivitis, very similar in its initial appearance to trachoma, but radically different when judged from the clinical course. This disease was not mentioned again for thirteen years until Huntemüller and Paderstein[3] reported a series of fourteen cases. Judged from the standpoints of history and geography, it was unlikely that these were true trachomas, but rather an endemic infection of the conjunctiva acquired in several of the swimming pools of Berlin. All of the affected individuals were young adults and in the majority, the disease was unilateral. Three years later, four of the cases were found to have thickened lids (although without conjunctival changes), similar to the trachomatous complication and slight vascularization of the cornea. Cell inclusion bodies microscopically identical with the Prowaczek-Halbevstädter Chlamydozoa, were found in conjunctival scrapings from the fresh cases and could be transmitted to apes. From their investigations, these authors concluded that they were dealing with an infectious disease of the conjunctiva, but could not decide whether it was a disease sui generis or a low grade trachoma.

Brown[4] reported five hundred cases that had appeared in Philadelphia during the summer of 1914. The source of infection was traced to various baths in a restricted area. The disease assumed more of the character of a "pink-eye" rather than a trachoma and was of short duration, the average length of time under treatment being three days. The period of incubation was assumed to be twelve hours, because all of the cases became bilateral within that length of time. In one case there appeared a corneal ulcer (probably due to secondary infection), the only complication among the entire five hundred. The bacteriological findings in the few cases thus examined were so varied as to be entirely without value, nor was any mention made of search for the inclusion bodies. Evidently, this epidemic reported by Brown was of an entirely different character from the one that occurred in Berlin and was probably an acute infection wherein the etiological factor was not recognized.

During the summers of 1914-15, I saw 18 cases of acute infection that I was forced to classify under the heading of swimming pool conjunctivitis. The majority of these occurred in young adults and a large percentage gave a direct history of the disease appearing within 3 days after swimming in a confined pool. The majority had used a large church center natatorium; several, a smaller pool, located in the slums; and two, Y. M. C. A. pools in cities other than Chicago. Four of the total number had been in Lake Michigan, but not in any indoor swimming tanks.

Smears from all of the cases were examined with methylene blue and gram stains for the bacteria usually found in infected conjunctival sacs. In a few, there were found staphylococci, xerosis, and Morax-Axenfeld organisms, but nothing that could give rise to the clinical picture present. Almost half of the cases were examined by scraping the conjunctiva and staining the smear with Giemsa; where silver nitrate had not been used, the cell inclusion bodies were always found; but even infrequent use of silver caused a rapid disappearance of these bodies.

Clinically, the picture was about as follows:

In the earlier stages of the disease, ocsasionally unilateral, but frequently bilateral within a week.

Moderate photophobia.

Small amonut of muco-purulent secretion, particularly at night.

Moderate edema of the lids.

Tarsal conjunctiva slightly swollen and roughened. Coarse injection with individual vessels

*Read before the Chicago Medical Society, Dec. 1, 1915.

standing out prominently. No distinct hyperplasia of follicles. These symptoms increasing as the transitional folds are approached.

Conjunctiva of the transitional folds more swollen, with a smoother surface and deeper red color. Injected vessels lose their individuality. On eversion, the conjunctiva presents the rugæ-like appearance characteristic of the rectal mucosa.

Bulbar conjunctiva slightly edematous and swollen. Moderate coarse injection beginning at the transitional folds and decreasing toward the cornea, so that the limbus is surrounded by a zone of normal appearing conjunctiva. Caruncle participates only slightly in the conjunctival infection.

Cornea normal.

Under treatment, the disease loses its severity in less than a week and assumes a more subacute form. The discharge lessens and the conjunctiva becomes pale. As the treatment is continued, first, the bulbar conjunctiva becomes normal, followed within a short time by a resumption of the normal appearance of the tarsal conjunctiva. The disease is apt to remain in the transitional folds for some time after this has occurred and unless treatment be continued, will frequently undergo an acute exacerbation. Under ordinary conditions, the life of the disease is about three weeks.

The best treatment that I have been able to find (and I have tried everything I could think of), was 1 per cent. silver nitrate, daily, and argyrol 10 per cent., three times a day, or more. The silver nitrate seemed most effective when dropped directly into the conjunctival sac; for forcible closure of the lids, spread the caustic into the depths of the transitional folds, the parts most affected. These were not reached by simply brushing the fluid onto the everted lids.

In no case was there an involvement of the cornea or irritation of the deeper structures of the eye. Several times, treatment was stopped too soon and a subacute exacerbation occurred. But these usually yielded to continued treatment. In one case, the disease persisted—a chronic form—for over six months. The patient was a young girl of a neurotic temperament and in a physically poor condition. Two per cent. ichthyol and massage finally overcame the trouble, although this treatment was without avail in several other cases.

These cases would seem to coincide with the three reports from Berlin and form, I believe, a definite clinical entity. In its acute stage, the disease unquestionably resembles a fresh subacute trachoma; but the clinical course soon differentiates the two. Corneal complications did not occur in this series of cases and if we consider the inclusion bodies as probable etiological factors, never will occur. These bodies seem to be constant during the early stages of the disease, but disappear rapidly upon treatment. Whether or not they are to be regarded as positive etiological factors, time alone can tell.

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ARTHRITIS DEFORMANS.*

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The pathological position of true rheumatoid arthritis, or arthritis deformans, is perhaps not well defined. It is now generally believed that arthritis deformans is of an infectious nature. But the question is, what is the infective agent? Rosenow and others have thrown much light on the possible cause of this disease. Various germs have been found in the mouth, the tonsils, the gums, roots of teeth, etc., which are believed by many physicians to be the direct cause of arthritis deformans.

It is probably true that a chronic focus of infection in any region, may cause a systemic disease by hematogenous bacterial emboli, which infect and at the same time deprive the tissues of nourishment. But I maintain that an injury, unhygienic surroundings, worry, autointoxication, over-eating or under-eating, prolonged lactation, or too frequent child bearing—anything that will impair the vitality of a person, may result in arthritis deformans, tuberculosis, or some other form of disease.

The disease may be a remote sequel of an acute infectious disease, as nephritis or neuritis may follow acute rheumatism, scarlet fever, typhoid.

Here are some clinical points to be remem-

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bered: The disease is much more prevalent in women; the proportion is from five to ten women to one man affected—yet women are much more careful of their teeth! The majority of cases of arthritis deformans arise at those periods at which the metabolism of the tissues is undergoing marked change, such as puberty and the climacteric.

There seems to be a marked tendency in some families to this disease, or rather, to be more exact, a tendency to inflammation of joints and fibrous structures.

Acidemia and intestinal toxemia are frequent accompaniments of the disease. Full 95 per cent. of the patients suffer also from neuritis and obstinate constipation.

The joints which have been most actively engaged in the special work of the patient are usually the first to show signs of arthritic degeneration. Organs which are overworked exhibit the first signs of decay. The hands are often affected first; very seldom do they escape altogether. Nearly always there is bilateral involvement. The first and second metacarpophalangeal joints are first affected.

Charcot said that the lesions tend to advance up the limbs towards the trunk. But, although the wrists are generally affected after the fingers, and the ankles after the feet, seldom are the carpal and tarsal articulations affected first, the elbow often escapes, while the shoulder is involved. In the lower limbs the knees seldom escape; but in this form of the disease in comparatively young people, the hip joints are not often affected.

The temporo-maxillary articulation now and then becomes stiff and painful at an early stage. It is attacked by rheumatoid disease in about a quarter of the total number of cases. It is an important diagnostic sign; but there is at least one form of septic infection which may attack this joint.

The symmetry of rheumatoid arthritis has been long observed. Occasionally, however, there is a hemiplegic distribution, not only of the arthritic phenomena, but of all the companion symptoms.

At a later period of the disease, the articulations of the spine may become engaged. The cervical vertebrae are usually attacked first; a difficulty is felt in rotation and nutation; and often the discomfort is referred to muscles rather than to bones. The dorsal and lumbar dorsal and lumbar vertebrae may be crippled next, so that nearly the whole length of the spine is transformed into a rigid column. The body is twisted and shortened, and moves in one piece; and in the recumbent posture the muscular difficulties are great; in a number of cases, however, the disease does not go beyond the cervical spine, or is checked by appropriate treatment. In this form of disease, the large preponderance of patients is among women.

The partial monarticular form of the rheumatoid arthritis is seen in the knee, hip, spinal column, and shoulder. The joints which are nearest the trunk suffer the most; and by old writers the term "hip-ache" was applied to all pains in that part, if the nature of the pain, whether due to sciatica or disease of the hip-joint, could not be nicely discriminated. But it was recognized that men suffer much more with this form of arthritis than women; and, as men are more exposed to injury and to the physical danger arising from occupation, so this form of rheumatoid arthritis came to wear a surgical aspect. A very slight injury may give the first impulse of senile change. But what a relative word senility is! Observe that the so-called monarticular lesion tends to spread out and become multiple, rheumatoid hips are apt to be followed by rheumatoid knees, and the infirmity in the elbow may follow infirmity in the shoulder. Very rarely are the hips crippled without engagement of the neighboring lumbar or even the lower dorsal vertebrae.

Atrophy of the muscle is often an early symptom and synchronous with the arthritic disease.

When one recalls all of these symptoms; that the disease is commonly symmetrical in its progress; that it is often associated with neuralgic and trophoneurotic symptoms, and the muscular wasting is out of proportion to the joint mischief; can one be blamed for seeing an analogy between arthritis deformans and the artheopathy originating in disease of the spinal cord?

Other behaviours of muscles in this disease must be noted. Cramp and intermittent spasm may last for hours at a time and cause acute pain. Tremor seizes a rheumatoid limb now and then, beginning nearly at the same time as the arthritic lesion. The spasm is of the type of paralysis agitans.

The changes in the circulation are frequent and important. Almost from the beginning there is an increased rapidity of the heart's action. The blood pressure is usually high, and there are more or less degenerative changes in the blood vessels. In many cases there are disturbances in the color of the skin.

In order that the treatment of arthritis deformans should have much chance of success, the following requirements must be complied with:

1. The treatment should be commenced as soon as possible after the appearance of the earliest signs of the disease.

2. It must be such as to maintain and increase the patient's strength, and all measures which have an opposite tendency should be avoided.

3. To be effectual it must be steadily continued over a period of months; or even, with short intermissions, for years.

The modes of treatment available may be grouped under the following heads:

1. Treatment by means of diet, hygiene, etc.
2. Climatic treatment.
3. Treatment by baths.
4. Internal administration of drugs.
5. Vaccine treatment.
6. External and local applications.

1. *Diet and Hygiene.* The question of diet is most important one in connection with the disease under consideration, for while a suitable diet lends material aid in coping with rheumatoid arthritis, needless and injudicious restrictions tend, on the other hand, to favor its progress and extension. This is a point on which it is impossible to lay too much stress, for the superficial resemblances between rheumatoid arthritis and gout have given rise to a widespread impression that a dietary suitable for a gouty patient is suitable for the rheumatoid patient, also. Thus the amount of animal food allowed is restricted or meat altogether forbidden. Experience shows that an entirely opposite course is that which affords the best chance of arrest, and that no greater mistake can be made than to treat the sufferer from rheumatoid arthritis as if he were an ordinary gouty subject. In the former disease the great need is to increase the patient's strength, or at least to maintain it as far as possible; and accordingly, no restriction should be imposed other than this, that the food should be such as the patient can best digest and best assimilate. If dyspepsia be present, it should be treated by drugs, and by such an arrangement of diet as is best adapted to the patient's digestive powers, while retaining as far as possible its nutritious properties. Generally speaking, meat, far from being avoided, should be taken freely, together with a suitable quantity of vegetable food. There are exceptions, of course, to the above general rule. When the temperature is continuously high, or when, as is more often the case, attacks of fever of no long duration occur, the diet must, of course, be modified accordingly, but should be as nutritious as is possible under the circumstances. The object should be to give a generous diet which shall include the several main food factors, though it should be adapted to the conditions of the particular case. The acid fermentation in the stomach should be eliminated, and this is most readily accomplished by cutting off all saccharine and farinaceous articles of diet, and placing the patient for a few days on an abundance of red meat with plenty of hot water. Red meat produces ammonia, which neutralizes the sarolactic acid in the muscles; then milk to which some sodium bicarbonate and chalk or lime water have been added, junket and cream. Afterwards green vetegtables and farinaceous food, except oatmeal; a fair amount of fat should be given, especially olive oil or cod-liver oil; at least 30 c.c. (1 ounce) of one of these oils should be given every night at bed time. Bacon gravy, fat bacon, cream, butter or margerine are valuable adjuncts, but beef and mutton fats had better be eschewed. The patient should take a liberal amount of table salt with meals. All acids and acid fruits, rhubarb, tomatoes, and asparagus should be avoided. When saccharoses are considered permissible, glucose and honey are better than cane sugar or jam, but perhaps a little marmalade may be occasionally allowed. When the patient is improving, grapes, bananas, nuts, stewed prunes and figs may be allowed; saccharin is better than sugar, more especially if the urine has become alkaline under treatment, and tends to deposit phosphates. Some patients can take eggs lightly boiled, scrambled or poached, but others can not. It is allowable to take milk puddings prepared without sugar, clear soups, macaroni and milk soups. This diet, so far from

being ill-nourishing, may actually fatten the patient, and I have known those who, using this for a time and then stopping, became worse from eating more robust fare.

Regarding drink, there is nothing better than pure water, especially hot water. Tea, as ordinarily made, is injurious by reason of the tannin it contains, but if it is treated with boiling milk, being infused in it for fifteen minutes, the tannin associated with the albumen of the milk forming a bland, non-astringent and harmless combination. To a half cupful of this infusion should be added as much boiling water. Sweeten to the taste with saccharin. Cocoa and coffee may also be used when prepared in this manner. Milk and soda water containing about 2 gm. (30 grains) of sodium bicarbonate to the litre (1 pint), barley water, and raisin tea. Avoid all sweet and acid drinks.

Atmospheric changes and exposures tend materially to increase the articular pains; and woolen underclothing adapted to the season of year should always be worn.

Exercise in moderation is to be commended; and even when the joints of the leg are affected a certain amount of walking should be allowed; but this should not be sufficient to cause lasting pain. Even when the patient can only get about in a wheeled chair, fresh air is desirable; for it must be our aim in this, as in other matters to keep the patient in as good a state of general health as possible.

2. *Climatic Treatment.* A warm, dry climate and a dry soil are the most suitable to rheumatoid patients, and the climate should be as equable as possible, as sudden fluctuations are apt to increase their pain. If the patient's home is in a damp neighborhood, removal to a drier locality should be urged; and well-to-do sufferers often obtain benefit from wintering in a warmer climate than this section of the country affords. In a choice of a place of sojourn, the importance of an equable warmth should be borne in mind. Such a change is especially adapted to cases in which the disease is not sufficiently advanced to cripple the patient; for when this stage is reached, the discomforts of a long journey may counterbalance the good to be expected from a change of climate.

3. *Treatment by Baths.* In almost all cases in which circumstances permit, the patient, in whom the disease is not already so far advanced as to preclude hope of material advantage, should be advised to undergo a course of thermal treatment in addition to other measures; and it may be advisable that the course should be repeated annually for several years. Peat or mud baths, such as I am using at Mudlavia, are of undoubted value as hundreds of people who have been greatly benefited by our treatment, can testify. I am fully convinced that the mud baths are more beneficial than hot mineral water baths.

The electrical treatment of arthritis deformans has been carried out on two distinct lines, and in both ways with some success. The older mode was by direct application to the affected joints and their neighborhood, by using the continuous current, and so setting up vasomotor changes to modify the nutrition of the joints. The more recent treatment consists in general electrification by means of the electric bath, in the hope of changing the general state of nutrition of the whole system, and so, indirectly, of arresting the morbid process.

4. *Of Drugs.* I have found guaiacol carbonate, arsenic, iron, especially the syrup of iodide of iron, and in some cases, potassium iodide, to be of the most value. General tonic treatment is indicated of course. To correct the acid fermentation and improve the motor function of the stomach, sodoxylin, or the following: 2 gm. (30 grs.) of sodium bicarbonate, 0.6 gm. (10 grs.) of potassium bicarbonate and 1 gm. or 1.3 gm. (15 to 30 grs.) of aromatic chalk in a glass of milk, given about half an hour before meals, and a double dose at bed time; often smaller doses suffice. An excellent stomachic which may be needed in some cases, is calcium chloride, hydrochloric acid, and minute doses of tincture chloride of iron to be given after meals. A small cholagogue pill should be regularly administered to keep the bowels open; for this purpose an excellent mixture can be made with the sulphate, bicarbonate, and salicylate of sodium and licorice. The pancreas is also usually at fault, and to improve its action a capsule of holadin and bile salts may be given about two hours after meals. In these cases the thyroid gland usually is too active, and so, save in gouty or luetic cases, all preparations of iodine and thyroid should be avoided. Possibly suprarenal gland and pituitary extract might do good, as it has been shown that

these secretions tend to retain the lime in the system, whereas the thyroid increases its elimination, but it is preferable not to prescribe such powerful drugs when milder ones may suffice. It is imperative to get lime into the tissues and to lessen its elimination, but herein lies our difficulty, as no matter how much is administered by the mouth, it may be as rapidly excreted as it is absorbed, and so none may reach the tissues; but on the other hand the acidosis in the blood may be taking lime from the tissues as well as from the intestinal tract. In order to get the lime into the tissues there must be a liberal oral supply, and the blood must be kept very alkaline. For this it is well to prescribe freely chloride of sodium and potassium, sodium bicarbonate, chalk, lactate of lime, and calcium glycerophosphates. Iron is best administered in the form of underdone red meat and yolk of eggs. Guaiacol not only relieves pain but, if taken long enough and in sufficient quantities, is capable in some cases of arresting the course of the disease, decreasing the size of the joint and allowing increased movement. Both in the subacute and the chronic forms it is useful, its action being, probably, to arrest further infection from the intestinal tract, and after absorption, to combine with the bacterial toxins and thus assist the removal of the hypertrophied fibrous tissue. From .3 to .6 gm. (5 to 10 grs.) of the guaiacol carbonate should be given three times a day at first. This should be increased .06 or .12 gm. (1 to 2 grs.) each week until the dose reaches 1 to 1.3 g. (15 to 20 grs.). That this treatment be continued for at least a year is essential.

Arsenic given in small doses for three weeks out of every four is valuable. Arsenic stimulates gastric and intestinal digestion, thus increasing the appetite, while it heightens the activity of the tissues, favoring assimilation of food. Also it improves the condition of the blood by causing an increase of red marrow in the bone. I have used cacodylate of sodium hypodermically with good results.

The effects of medicinal treatment, as of other measures, are most marked in the cases in which the disease appears in early life and in its more acute form; but the patient should be instructed to persevere in any line of treatment, even if at first there be no obvious improvement, or indeed the reverse; for it is a common experience that even in the cases in which the most satisfactory results are ultimately obtained, no effect is apparent for several months after treatment is commenced.

5. *Vaccine Treatment.* By means of autogenous vaccines, in case a focus of infection can be found, should be practiced. It is not always possible to locate any focus, but the mouth, throat, ears, genito-urinary tract, should be carefully examined and any trouble in these localities relieved if possible. Rosenow has shown that the tiny blood vessel supplying the joint surfaces and the tendinous insertions of muscles become the seat of infectious emboli. The injury to the blood vessels by such bacterial emboli is followed by a thickening of the intima and thrombotic changes, the sum total of which leads to anemia and edema of the involved part, to be followed too often by degeneration and destruction. And, while theoretically, vaccine treatment is the rational, scientific method to pursue, we find, nevertheless, that vaccines alone fail in the majority of cases, in effecting much relief. I have found that the general treatment appropriate for a case of tuberculosis has proved that most satisfactory. In the main I agree with Billings, who says: "The treatment and management must comprise: (a) the removal of the cause; (b) improvement of the immunity by rest, personal hygiene, good food, pure air, and sunshine, rational calesthenics and physical culture, moral support and a cheerful environment. Autogenous vaccination may be used to improve the immunity still further."

If the source of infection is discovered, and if an autogenous vaccine can be made, it should be employed by all means. A. Bertram Soltan reports experiments with vaccines derived from staphylococcus. He claims that the employment of this vaccine has been followed by marked improvement. The dosage has been from 150,000 to 3,000,000 or 4,000,000. It has not always been easy to prevent excessive reaction, and at times a reversion to the earlier minute doses has been necessary after reaching the highest doses mentioned. The reaction has usually been an exacerbation of joint pains and swellings, together with slight rise of temperature. The injections are usually made at weekly intervals.

6. *Local Treatment.* In rheumatoid arthritis local treatment is of little avail; even when

it is applied for the relief of pain, the results are usually disappointing, and it has no influence upon the course of the malady. Continued dry massage, as distinguished from a short course of douche-massage, has the advantage of restoring the wasted muscles; but it is not of any material benefit to the affected joints, and if too long continued, sometimes seems to do harm rather than good.

CHARCOT'S JOINT.*

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The type of cases which is observed only occasionally often causes the keenest interest because of a possible error in making the diagnosis. So it is with Charcot's joints, for they are not coming in to us every year. The frequency in which this form of lesion initiates cases into observation is another interesting feature. Several cases of tabes have been diagnosed by the appearance of a spontaneous fracture bringing the attention to ataxia and other symptoms of locomotor. There has in the past been proportionately little said about these conditions; they merit more, as will be seen in this article.

Generally speaking, a Charcot's joint implies tabes. It is so in fully ninety or ninety-five per cent. The remaining five to ten per cent of cases appear in syringomyelia. When a case presents with joint symptoms there should be no trouble in making a diagnosis if you elicit one or more signs peculiar to the two foregoing diseases.

We must learn to anticipate nothing but must have in mind a picture of these pathological swellings in their various stages. Elbows or knees are most frequent. The joint is usually large, loose and filled with fluid. There is increased play of the bones. The joint is often much deformed and some limbs affected seem to be extended. Profuse growth or irregular enlargement of the soft tissues is the rule. They make you think of elephantiasis. In many cases the swelling goes beyond the joint, particularly noticed in the case to be mentioned. Portions of the joint may be destroyed; the heads of bone may be absorbed and infection getting in may make abscesses at these points. In case of the hip, absorption of bone causes displacements and shortening. Spontaneous fractures may occur before the swelling has caused much attention.

In the spine there is usually a rounded kyphosis in the lumbar region. Late cases usually show bony points easily felt under the skin. Since these are trophic disturbances anesthesias exist and as a rule there is little complaint of pain. Numbness, frost-bites without the patient's knowledge or other painless injuries point to these pathological conditions. A nice comparison can be made here for differential diagnosis of our five per cent of these joints. Here is a case I have seen lately:

Male, 27 years of age, looks strong, says he has never been sick, excepting the present trouble. He has now a very large left arm from elbow to tips of the fingers, which are stubs resultant from previous necrosis. Six years ago the left hand fingers were frost bitten; the ends of two came off, one finger was sore for a long time. Three years later another finger became inflamed and was removed. Five years ago the hand had begun to swell and has continued to increase gradually This swelling receded at intervals, but each time the extremity remained larger. During the periods of the increases he says the right knee and shoulder were stiff. The wrist is now loose; the ends of the bone were softened and partly absorbed. Spontaneous dislocation occurred as shown by the fluoroscope. There was no pain and no sensation. Thermo anesthesia was very noticeable. Ataxia was present, also the greater toe drop on the right foot. Rhomberg sign absent. Argyll Robertson pupil was absent. Wassermann of the blood was negative; by oversight the spinal fluid was not examined. The patient's family and personal history were negative. The joint is characterized by thermal anesthesia which with the absence of Westphal's and Rhomberg's signs, makes the diagnosis of syringomyelia clear.

With this diagnosis is ushered in Morvan's disease or painless whitlow, which is considered by some authors as a variety of syringomyelia. In Morvan's variety the upper extremities alone are involved, the same as our case just described. There were repeated whitlow of the fingers; in each bone had come away, as shown in the x-ray picture. The unilateral nature of the lesions is only an element in diagnosis. Most of the authors now think Morvan's disease is a form of syringomelia. Zambacco also thinks that they are an attentuated form of leprosy. The distinct presence of scars in this case and the location of the lesions in the upper extremities,

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with the thermo-anesthesia distinguish it from the latter.

A history of pain for a long time with ataxia, Rhomberg's and Westphal's signs present, gastric or vesical crises make the diagnosis easy for tabes. As in the following case seen in our clinic lately.

Male, 50 years of age; history of syphilis 25 years ago, long continued headache, later he had Argyll Robertson pupil, loss of knee jerk (Westphal's symptom present). The tests showed spinal fluid, Wasserman positive, butyric acid positive, Lange's gold test slightly positive, Nonne's globulin test positive. The number of white cells per cubic millimeter was above normal. There were 38 in the highest count.

A few months ago symptoms of distress and enlargement appeared in the lumbar region with impaired movements. Then suddenly a prominence appeared at the third and at the fourth lumbar vertebrae. The third had slipped over the fourth, pressing on the cauda equinae, causing paresis of the abductor muscles. The symptoms remained unchanged for a few weeks, followed by slight improvement, when a brace was fitted on which enabled the patient to be up and walk about carefully. This case was ended by sudden death, as if from failure of respiration; it was thought to be from embolism.

In making a diagnosis, exclude inflammatory and tubercular joints, and remember that in cases of thermo-anesthesia or thermo-analgesia your case may be syringomyelia; the paresthesia from syphilis may be confusing at first but not after a case is studied. as was seen in the one mentioned, with the thermo-anesthesia which permitted the frost-bite, apparently the first symptom of the patient.

THE ROENTGEN EXAMINATION OF THE APPENDIX.*

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The diagnosis of chronic appendicitis is still a matter of controversy; however, the Roentgen examination has to a certain extent eliminated some of the possible errors. While it is the object of the profession to make the work scientific, yet with all the methods now available, we are not able to make it absolute.

From the Roentgenological standpoint, little need be said of acute appendicitis excepting that one occasionally might be illumined in a left sided appendicitis, several such cases having been reported. In such an instance an opaque enema carefully given during fluoroscopic examination will show if we have a case of situs inversus.

The bizarre, atypical symptoms in some cases lead to a faulty diagnosis and after the removal of the appendix it is found to be uninvolved and the condition of the patient remains as before. The appendix has frequently been removed when the real cause of trouble was a stone in the urinary tract, especially in the lower right ureter, tuberculous peritonitis, tubercular mesenteric glands, painful right inguinal hernia, pleurisy, etc. It is therefore evident that any supplementary knowledge should be welcomed.

The object of this paper is to place confirmatory data in our hands, which, with other clinical findings warrant a diagnosis of chronic appendicitis.

Holzknecht, Albers-Schonberg, Beclere, Jordon, Groedel, Riedel and other European roentgenologists did some early work on this subject; however, considerable credit must be given some of our American collaborators, notably Cole, Quimby, Imboden, George and Case, for appreciating the possibilities of this method of examination.

There are two methods of visualizing the appendix; the first is by injecting an opaque enema, the second by the ingestion of an opaque meal. The second is preferable because of the greater frequency with which the appendix can be demonstrated. In examining the patient the fluoroscopic method is the most satisfactory, and this should be done in both the vertical and horizontal positions.

By proper manipulation an otherwise hidden appendix can be shown, also movability and relationship to the surrounding structures noted. The plate method should also be used for it occasionally gives additional information. Sometimes stereoscopic plates are indicated whereby one can trace a retro-cecal appendix, or an appendix in close proximity to the cecum or ileum, which might otherwise be overlooked.

It is necessary that the lumen of the appendix be patent. The appendix may not be demonstrated if its lumen is obliterated or if adhesions or kinks are present near the proximal

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end; or if an acute attack exists, the infiltrated mucous membrane prevents the entrance of the opaque substance; also an enterolith or previously contained matter may prevent its filling.

The writer has had several cases in which the first examination failed to reveal the appendix, but a second examination disclosed its presence.

The two possible factors in filling the appendix are antiperistalsis in the ascending colon and sedimentation.

Groedel has recently asserted that every appendix which permits the entrance of an opaque meal is pathologic. However, the more rational assumption is that if the appendix empties itself at the same time that the cecum does, it should not be considered diseased, for Moro has cinematographically demonstrated peristalsis in the appendix of a dog similar to that which exists in the cecum. Cohen says that cecal contents normally enter the appendix; it should, however, be empty when the cecum is empty. He states it may fill and empty itself several times during the same opaque meal.

The time of examination is important, for the appendix commences to fill shortly after the cecum. This is usually after the sixth hour although there are cases that fill earlier; from this time on until the bowel is empty and often for several days afterwards the appendix remains visible. Howard A. Pirie has reported one case in which the shadow persisted for forty-three days.

Pathologists inform us that the evidences of previous appendiceal inflammations are peritoneal adhesions; obliteration of the whole or portions of its lumen; strictures of the lumen with more or less dilatation distal to it and lastly the presence of hard concretions which are retained by strictures or produce the same effects as strictures.

Concretions may occasionally be shown. The other factors are inferential from the following information. The visualized appendix with fluoroscopic manipulation will give us; first, the size, including the length and calibre; second, position and direction; third, drainage; fourth, mobility; fifth, kinks; sixth, the location of applied pressure to visceral topography. This latter point is quite important, for should pain be constantly elicited by pressing on the appendiceal shadow, one is justified in suspecting its involvement, for seeing palpation is more valuable than palpation without seeing. This often throws light on cases in which anomalous symptoms have resulted from the appendix being situated in the pelvis, behind the cecum, or unusually high, when the symptoms may simulate gall stones or duodenal ulcer.

Fluoroscopically the presence of adhesions in connection with the appendix, terminal ileum and cecum, whether to each other or to the surrounding parts, can often be recognized, especially if they are extensive. If the cecum is in the pelvis it can often be drawn into the right iliac fossa. When this can not be done, it is impossible to determine whether adhesions are present, as the cecum and appendix are too deep to be palpated satisfactorily unless the colon is distended with air or the bladder is not emptied for ten or twelve hours. Sometimes the Trendelenberg position releases a mobile cecum so that the appendix is palpable and visible.

The appendix produces effects on remote organs. The stomach may be hypertonic so that it empties itself rapidly. This is much less frequently observed than with duodenal ulcer. More commonly a spasm occurs in the center of the stomach. Indeed, chronic appendicitis is, after gastric ulcer, the most frequent cause of spasmodic hour-glass constriction of the stomach. Sometimes pressure over the appendix will produce a spasm, in most cases epigastric discomfort was simultaneously produced. Barclay declares that appendicitis causes an impairment of the ileopyloric reflex producing appendix dyspepsia. Occasionally we have associated a delayed pylorospasm. Intestinal stasis is sometimes the result of adhesions following a chronically inflamed appendix.

Stasis of the cecum and ascending colon is often due to reflex inhibition resulting from chronic appendicitis. In such cases the cecum and ascending colon are often abnormally large and unusually mobile.

Enterospasm usually affecting the proximal half of the transverse colon is sometimes present.

When the appendix hangs over the brim of the pelvis or when the cecum as well as the appendix is situated in the pelvis, chronic appendicitis may produce dyschezia.

TETANUS, WITH REPORT OF CASES.*

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As recovery from tetanus after the fully developed symptoms have taken place is somewhat rare, I thought this paper with report of cases might be of interest.

Tetanus is a microbic disease invariably preceded by some injury and characterized by spasms of the voluntary muscles. Wound may have been so slight as to have attracted no attention. It is possible that the infection can occur through a mere abrasion of a mucous surface. The fact that the bacillus of tetanus is anaerobic explains the comparative frequency with which punctured and lacerated wounds are attacked.

Usual period of incubation is from three to six days although many cases have been known to manifest themselves many more days after an injury. In most cases symptoms first presenting are stiffness of jaw, nervousness, etc. In some cases there is just stiffness of neck and patient thinks he has taken a cold. Neck and jaw become as rigid as iron and fixation of jaw takes place, commonly called trismus. Act of deglution is impaired. Muscles of back, legs, and abdomen are thrown into tonic spasms. Arm rarely suffers. Contraction of muscles of back become so powerful at times as to cause opisthotonus. May be drawn to side and cause pleurostothonus. The characteristic condition in tetanus is one of widely diffused tonic spasm aggravated by peripheral irritation as sounds, light, shaking of bed, attempts at deglutition, draughts, contact of bed clothing, etc. Temperature may be normal, but is usually elevated. Insomnia is always present. The spasms of the diphragm, glottis and of muscles of respiration may produce death and always produce great dyspnea. In greater per cent. of acute tetanus death occurs within five days, some as early as the second or third day. If patient lives a week his chance of recovery is good. In late years the death rate in acute tetanus has greatly diminished. Chronic tetanus appears later after a wound (two to four weeks), and symptoms are not so severe. Death rate not nearly as great and more amenable to treatment.

Acute tetanus rarely now confounded with strychnine poisoning, hysteria, tetany, or with hydrophobia.

Within the last few years evidence as to the efficiency of antitetanic serum in cases of fully developed tetanus has been obtained by Permin and Park. In animal experiments, also from hospital statistics. From these findings it seemed very likely that if the serum were given so as to meet the pathogenesis of the disease the course of tetanus when developed could be much modified and greatly reduce the death rate. Conclusions based on relatively small number of cases are, of course, open to question, but the fact that a previous death rate of over eighty per cent. in all cases, and seventy per cent. in serum treated cases has been reduced in same class of patients to slightly over forty-five per cent. when serum was used must be given some weight in estimating the value of antitetanic serum as a curative agent. The chances that within a short time statistics of many cases in the war one will be available, makes one hestitate to attempt generalization on data insignificantly small in comparison.

The following cases are reported to add corroborative testimony to the efficiency of intramuscular and subcutaneous administration of antitetanic serum.

Case 1. On May 8, 1915, I was informed that a seven-year-old boy suffered from stiff neck, nervousness and fever. Nine days previously while playing in the yard, a very small nail had perforated his small toe. This wound was poulticed by the parents with flax seed and readily healed within a few days, and no further trouble was anticipated by his parents. I found the boy having convulsions every ten to fifteen minutes, absolutely rigid; abdominal muscles exceedingly tense and hard, temperature 103, pulse 100, respiration labored. Muscles of face were very much contracted, teeth barred and causing that peculiar grin which is so characteristic of tetanus. He had also had a severe chill same morning, was able to talk with great difficulty, could open mouth only enough to swallow quantities of liquid. Only evidence of wound was a slight scab on upper surface of toe, no larger than a pin head. On examination I peeled this away and a drop of pus exuded with small black fibre from hose that had been carried into perforation by nail. On trying to raise patient into a semirecumbent position it seemed like handling an inanimate object. He complained of severe pain in head and stated that it was drawing him together around the chest. As there was now no question as to the correctness of the diagnosis antitetanic serum was administered.

First injection consisting of 10,000 units given at 4 p. m. Six hours later 5,000 units more were given

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intramuscularly. Following morning pain was less severe, but moment patient was disturbed painful muscular contractions and general irritability occurred. That morning he received 10,000 units more. At 8 p. m. he was somewhat improved; temperature slightly lowered, 102; pulse, 100; muscular rigidity not so pronounced and only became manifest on slight disturbances.

The third day he was given 10,000 units at 10 a. m., subcutaneously. Toward night rigidity became less marked and patient rested some. Fourth and fifth day he received 5,000 units subcutaneously, daily, with further improvement. Sixth, seventh and eighth day he received 3,000 units daily, also given subcutaneously. Patient was now able with aid to assume a semirecumbent position in bed, still was evidence of muscular rigidity. Ninth day 3,000 units more were given subcutaneously. Muscular rigidity was still lessened; temperature 99, pulse 88, and labored respiration relieved. Eleven days after first injection and twenty days after injury rigidity of muscles had disappeared and temperature was normal, pulse 80. Thereafter patient's recovery was rapid, his appetite increasing and digestion improved. He still complained of soreness but this gradually disappeared. During course of treatment the patient received a total of 55,000 units of antitetanic serum administered intramuscularly and subcutaneously. Injections were made in back and along thigh. He suffered some discomfort at site of injection.

Internally chloral hydrate was given, also triple bromides. There was difficulty in administering of medicine on account of closure of mouth, but after a few injections of serum mouth could be opened sufficiently to permit the use of a hard rubber tube and by swallowing a small quantity of liquid at a time he did very well.

Epsom salts were administered daily to secure free elimination. Liquid nourishment was given either just before or after the administration of medicine, so as to disturb the patient as little as possible.

During first few days of serious symptoms urine was highly colored, but later became normal. During the period of treatment wound was dressed with carbolized gauze, and when dressings were changed the small wound was bathed with peroxide. In the treatment of this case the feature that seemed particularly worthy of note was the marked improvement in patient's condition following each administration of the antitetanic serum, resting slightly after the injection. He would awaken at the slightest noise, would go into convulsions from draughts striking him, or even the bed clothing coming in contact with him when raised would bring about convulsions. This case was sufficiently severe to indicate the great value of antitetanic serum.

Case 2. A colored man, aged 22 years, was struck on the head with a fire poker, February 28, 1915. He sustained slight superficial laceration of the scalp. Antiseptic to wound was used and it seemingly healed within a very few days. On January 8, the man complained of nervousness, stiffness of jaw and neck, which was easily apparent as he described it and also as described by the attending physician with whom I saw this case. Temperature was 102 axillary, pulse 120. Slight convulsions were apparent and aggravated by draughts of air, noises, and external stimuli of any source. Immediate administration of 10,000 units of antitetanic serum subcutaneously. Six hours later he received 5,000 units more subcutaneously. Six hours after first injection change was very slight if any save that patient rested some easier. After the second injection spasms became easier, and tendency to rest, but still disturbed by spasms of short duration. January 9 patient was better and January 10 all spasms and rigidity of muscles had ceased. Temperature now was 99 and pulse 100. This case made a very speedy recovery after this. In connection with the case it is noted that the period of incubation was nine days, which classifies it as an acute case. Had reached the exhaustive stage where convulsions were present every fifteen to twenty minutes. Muscles of back had been drawn so hard that it had produced opisthotonus. Had difficulty in even taking liquid for forty-eight hours. Local treatment consisted of dressing of boric acid and alcohol pack. Free use of Epsom salts to assist elimination. Sedatives in form of bromides, chloral and morphin hypodermically.

Case 3. September 20, 1913, was called to see a boy aged nine years, who had had a lacerated wound of left hand of two weeks standing. Wound had been dressed by family with ordinary home remedies of turpentine, lard, etc. Boy complained of severe pain in head, nape of neck and chest. He was very nervous, easily frightened, and had spasms every five minutes. Temperature 104, pulse 130. Was constipated. Urine highly colored and eliminating poorly. Had the characteristic aspect of a man eighty years old. Jaws were set, teeth barred and could not open mouth to admit of any food save liquid which was given between the teeth. This boy received 10,000 units of the antitetanic serum intramuscularly at 7 p. m. There was no change six hours later. Then received 10,000 units more. This was followed six hours later by very slight improvement.

Second day convulsions were fewer and less painful, also resting slightly better. He received 5,000 units of serum second, third, fourth and fifth day, respectively. There was constant improvement in patient's condition. At end of sixth day temperature was 100, pulse 110, and respiration greatly relieved. Spasms were less frequent and he was now able to open mouth a little. Rested better following each injection of serum, which is very noteworthy. By end of ten days patient's temperature was 99, pulse 100. From then a speedy recovery ensued. During the course of serum treatment he was given free elimination with saline laxatives. Bromides, strophanthus and morphin were given, also chloral by rectal route which seemingly reacted very well to secure rest. Diet was liquid in form of milk, broths, liquid peptonoids, etc. Wound of hand was dressed with car-

bolized gauze, boric acid and alcohol. This healed very readily and at end of twenty days patient had completely recovered.

SUMMARY.

From these results obtained in three cases enumerated the only three cases that came under my observation within eight years of practice, it is evident that antitetanic serum will save lives in which tetanus has fully developed. The frequent delay in giving serum after symptoms have developed, complications of sepsis in lacerated wounds, and inadequate methods of use of serum has served to throw doubt hitherto on the curative value of antitetanic serum. If patient is seen early before fatal poisoning of system has taken place neutralizing of free toxins in blood and counteracting of poison already in system, aided by use of sedatives and other indicated medical and surgical procedures will save a good number of patients who would otherwise die. Many men have had exceedingly good results by administering the serum both intravenously and intraspinally, especially in those cases where poisoning of the nervous system was pronounced. In conclusion: It is better to prevent tetanus than to cure it. A prophylactic dose of 1,500 to 3,000 units should be given as soon as possible after the receipt of the traumatism suspected of causing tetanus. Wound should receive sterile plan of treatment even after giving of the serum and patient closely watched. But when tetanus is manifest the result from primary or immediate injection of a full dose of antitetanic serum are so effectual and satisfactory that it does not seem to me that we are justified longer in trying any other prophylactic treatment.

DISCUSSION.

Dr. Mitchell: I have treated a half dozen cases with serum and I have succeeded in curing four. Two years ago the wife of a German farmer stepped on a piece of glass and developed tetanus. Anti-tetanus serum, ten thousand units, the first injection, succeeded in controlling the convulsions for four hours. At the end of four hours we repeated the injection and continued to give the woman the serum for about nine or ten days. For the first four days she had convulsions every four hours unless she received an injection of the serum and after that the convulsions began to let up and she received two doses a day until she recovered.

I had another case of a patient shot with a wooden cartridge in the thigh. The wound was cleansed as well as we could. At the end of nine days there was a rigidity in the jaws and in a day or two we had a fully developed tetanus and in that case we gave antitetanus serum. For the first twelve days we gave the injections every four hours. The father of the boy was a traveling man for a wholesale drug house. We gave that patient about $450 worth of antitetanus serum. He finally recovered. I think we should give on first seeing the case about ten thousand units; with that dose, the convulsions will absolutely stop for four hours, but at the end of four hours the convulsions will begin again and if you leave that off eight hours the convulsions will occur every five minutes.

Another case I had at Sumner: A little fellow had stepped on something and developed tetanus and the family were very poor and couldn't furnish serum and they bought some $40 or $50 worth of serum and we used it and the convulsions were relieved. We had to leave it off a while and the convulsions returned again. We drew on the county again and the patient was very much better again. Then we were unable to get any more serum—either from Cairo or East St. Louis. The following morning the boy had convulsions and died.

Dr. Butner: I have had two cases and both proved fatal. I believe that my mistakes have been in that I have not given the toxin in sufficient quantity. In fact, I was rather pessimistic about the use of the serum. The case I recently lost was a little girl eight years old, infected in the heel by a splinter. I gave her three thousand units and in twelve hours from the first injection I could see that it was very near useless, but I gave her five thousand more units and she died about five or six hours later. I believe if I had had enough to give her she would have recovered.

Dr. Grinstead, Cairo: I am going to report a case a year ago that did not get any of the serum. He was a farmer kicked in the face by a mule. Later on he developed tetanus and was sent into the hospital. I ordered for him some chloral hydrate internally and morphin hypodermically. I started him with 20 grain dose of chloral and a ¼ grain dose of morphin. Then I raised the hypodermic dose to ½ grain every four hours and the chloral to every four hours and alternated every two hours. I crept up with my doses according to the effect on the man. I thought I could control these convulsions and I did control them. He got well. I don't know how many cases of tetanus I have prevented by giving prophylactic doses of serum. Occasionally I have a patient who seems so much exposed to tetanus infection that I give him a good antiseptic or prophylactic dose. I never treat these cases lightly. I inject cocaine and push a probe directly to the bottom of the wound, using a pocket case probe and get the depth of the wound and then I push the director down. I take a small knife and run it on each side and open the wound wide enough and mop it out down at the bottom and put a gauze drain in, soaked in antiseptic.

I have been successful in cases treated that way. I am inclined to think that in a good many cases of accidental injury of persons who have been about horses or about stables where there are nails, that we had better give them a preventive dose. I have been greatly disappointed in the use of the serum and the class of patients I have have not the $450 for the serum.

Dr. Empson, Harrisburg: I never had but three cases of tetanus in my life and cured the three with the serum. I think that the serum for tetanus will do the same thing that the antitoxin will do for diphtheria if we use it early enough and in large doses.

Dr. Hamilton, Mt. Vernon: I think that both of the doctors are right, but I am a little surprised in the discussion of this paper that nothing has been made mention of except the serum. Three years ago, in consultation, I saw an 18-year-old girl, who had developed, four days before, the typical symptoms of tetanus and a contraction of the muscles of the jaw. The girl couldn't take anything by mouth. She had fever. We didn't have any serum. We gave that girl a 5 per cent. solution of carbolic acid, an ordinary syringe full, which holds 2 cc. of the solution, every three hours. On the second afternoon the peculiar tightening of the muscles had diminished rapidly. On the third afternoon she relaxed entirely and she got well. That was a typical case of tetanus and the blood was full of the globe-shaped bacilli.

Dr. Skaggs, Harrisburg: We have had in the army some very different cases. We didn't have serum. Some of these cases were cured by filling them full of permanganate of potash and salts. I used H. M. C. in 0.5 grain dose. We couldn't tell then whether most of them died from the lack of serum or not. The percentage was about 80 per cent. deaths. That is all the medicine we had.

Dr. Ferrell: I have no more question about the serum than I have about the diphtheria antitoxin. If I understand the law a practitioner who fails or neglects or refuses to do the best known to the profession raises himself open to suit for malpractice. Suppose some man has a case of tetanus and don't use the serum. Suppose somebody who wanted some money was to sue him for malpractice, how many doctors here would be willing to go on the stand and swear that he hadn't done his duty? It is a good thing for doctors to remember these things.

Dr. Lingle, Cobden: Dr. Murphy of Chicago said several years ago that any man who did not use it in cases of barn-yard injuries, etc., was liable. I have had occasion to use it about six times since. The cases might not have developed. I certainly believe in the efficiency.

Dr. Butner: I have never given antitetanus serum through any other route than subcutaneous or intramuscularly. Authorities tell us that it requires far less when given intraspinally.

EARLY CONSIDERATION OF PARESIS.*

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It is not the object of this paper to give a description of the classical symptoms of general paralysis, but rather to arouse suspicion of the presence of the disease at an early stage by directing attention to those symptoms often not marked, which appear early. These early symptoms are of special significance to the general practitioner for they are the first to see the disease in its incipiency. The disease is prevalent both in city and rural districts and no village or hamlet is without its case of paresis at some time. 10.2 per cent. of total admissions to our state hospitals for the insane suffer from paresis. One male admission in each three between the ages of 35 and 55 years came as paretics and the possibility of its existence warrants a careful investigation in every man of this age presenting mental symptoms.

The onset is insidious in a majority of cases, and no exact time can be assigned to the appearance of the first symptoms of the disease and only approximate date of onset is possible by members of the patient's family. The onset is occasionally abrupt, may be ushered in with an epileptoid convulsion. Such cases in my experience run a rapid course and show early mental deterioration. The average duration of the disease at the time of admission to hospitals for the insane was found to be twenty weeks for males; fifty weeks for females. The average age of onset was 41 years in males and at a slightly later period in females.

Of a series of cases studied 76 per cent. occurred in white males as compared with 24 per cent. in females. The sex ratio is practically reversed in the colored, occurring in 60 per cent. females as compared with 40 per cent. males.

Mental rather than physical symptoms predominate in the picture of early paresis, the higher association centers of judgment and reason, the most subtile and last acquired in the process of mental development are likewise the first to suffer from the deteriorating changes incident to the disease. These early symptoms are *protean* and variable in character, simulating those found in the course of many other forms

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of mental disorder. No single symptom stands alone as an index to paresis, but rather a combination of symptoms which amount to a change of personality, having as a basis defective judgment, together with certain physical and laboratory findings which must be relied upon for a correct interpretation of the disorder.

The first symptom in 29 per cent. of cases is restlessness with insomnia. These symptoms may precede further evidence of the true condition by many weeks or months and may easily be mistaken for many less serious and transitory conditions.

In 26 per cent. of cases, exaltation of mood is an early symptom—believing themselves possessed of superior business ability, or superhuman physical strength. The former business man of judgment, now busies himself with all sorts of unprofitable schemes, dissipates his means much needed by his family later; or the man of small stature and advanced years may enter training for the champion heavyweight boxer.

Depression of mood marks the beginning in 22 per cent. of cases, being more prevalent in the male and is an expression, in many cases, of the physical disorder of which the patient is conscious to a degree. These patients express many hypochondriacal ideas, simulating in this respect the depression found in other disorders.

Vague ideas of persecution associated with irritability mark the beginning of the mental disorders in 14 per cent. of cases.

Forgetfulness is an early symptom in most cases and is especially marked in 87 per cent. This involves more especially the sphere of memory for the recent past, and is often recognized by the patient himself—important engagements are forgotten, the names of acquaintances and dates cannot be recalled to his great embarrassment. Thus failing memory is largely responsible for the reduced working efficiency of the patient. Work which was once done with ease, now becomes a burden. Usual habits as to personal tidiness are forsaken, the patient goes unshaven and his general appearance is one of neglect.

When patients of paretic age present any of the above mentioned symptoms we are warranted in making a thorough physical examination as well as laboratory tests with paresis in view. In the sphere of early physical disorders we have the following to observe.

1. Pupillary changes are present early in the majority of paretics. A pupil irregular in outline, if unassociated with preinflammatory conditions and if attended by pupillary inequality, is very significant of early paresis. The pupillary changes to light may be increased, diminished or absent; if increased the pupillary excursion is small. The pupillary behavior to light changes may be quite different in the two eyes at any given time. Stationary pupils to light changes that maintain their reaction to distance are found in advanced cases.

2. Disturbances in deep reflexes, especially the patellar tendon reflexes which are in the majority of cases increased often to a knee clonus. The knee reflex may be unequal on the two sides and in a small per cent. of cases is diminished or absent. This is more particularly true of cases showing an early involvement of the cord, the so-called tabo-paresis.

3. Associated with changes in the pupillary and deep reflexes, clumsiness of movements occurs, the result of muscular incoordination early manifested by a difficulty in performing the finer movements incidental to their every day work, such as buttoning and unbuttoning the clothing, showing also irregularities of hand-writing.

4. Muscular tonus is early diminished, especially noticed in muscles of the face and is often unequally marked on the two sides, which abolishes the natural lines of facial intelligence giving a mask-like expression to the face.

5. Muscular tremors noticeable in the two axes of the protruded tongue and of the outspread fingers are often an early symptom which becomes more marked as the disease progresses. The trombone action of the tongue is quite characteristic in many cases of advanced paresis.

Speech changes are early symptoms in many cases, noticeable more often in conversation rather than in pronunciation of test words. Stammering of words and omission of syllables with repetition of others are some of the most pronounced defects.

These mental and physical findings should be corroborated by laboratory tests upon the blood serum and spinal fluid. The Wassermann reaction is positive upon the blood serum in some 90 per cent. of cases and in 75 per cent. of the spinal fluid of paretics.

Thus far medical science is in its infancy in its efforts to bring about a cure in general paralysis.

Measures to be carried out by the general practitioner are removal of the patient from irritating surroundings with rest in bed and the application of hydrotherapeutic measures to allay excitement and produce sleep. Cases showing evidence of local irritation of the central nervous system may be benefited by a systematic administration of mercury.

In conclusion I would say that no single symptom is an index to paresis. Any mental change in a patient of paretic age should receive careful mental and physical examination with paresis in view.

PANAMA AS SEEN BY A PHYSICIAN.*

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The passage from New Orleans to Colon, barring a mildly exciting rescue at sea, was without incident. There were the sea gulls with their graceful flight, the dolphins and the flying fish playing in the water trying to escape the ship, the monster they thought pursuing them, all without interest except to one green in sea travel. The line of demarcation between the Mississippi and the gulf water is as well marked as in a case of dry gangrene.

Quite a number of the one hundred passengers were sea-sick, but with me there was nothing doing. I was neither absent nor tardy at any table. The only land sighted on the way down was the west end of Cuba, and old Providence Island farther down. Early on the third morning out from New Orleans a wireless came from Cape San Antonio, Cuba, ordering the ship to go to the rescue of a steamer in distress, one hundred and fifty miles ahead and twenty-five miles off the course.

A little after seven p. m. I began to see what appeared to be rockets, and the lights of a steamer began to show. Within an hour we were stopped about one thousand feet away and had a boat on the way to the crippled ship. It proved to be a Spanish vessel from Barcelona, with two hundred passengers, and a crippled engine, anchored in about eight fathoms of water. It had been there forty-eight hours. None of the passengers could speak English, but there was no lack of enthusiasm on account of our presence. A boat with a small rope was sent over and a larger cable drawn back. In this way four large cables were stretched across. They weighed anchor and we started on the long hike to Colon. After towing the vessel twenty-four hours, on account of threatening weather, it was thought better to add another cable to those already attached, and a large one and one-fourth inch steel cable was added, without stopping, in the following manner: A cask was attached to a small cable and thrown overboard to float back to the other ship. The wash of the sea entangled it in the cable already in place. Its cable parted in trying to free it and it floated off.

A second cask was thrown overboard which was picked up by them, but they did not understand and threw the rope back into the sea. A third cask was more successful. They picked it up, removed the cask, attached a cable to the rope by means of which it was drawn across to the rescuing ship, attached to the steel cable and by means of a steam winch on the ship was drawn back and made fast. We were delayed just forty-eight hours by this incident.

The Why of the Isthmus. Early in the history of the world, as the dust and clouds incident to creation began to roll by, two flat-iron shaped pieces of land appeared close together, but without connection in the western hemisphere. Boats not being in use at the time, and being before the days of Darius Green, the Wright Brothers, wireless telegraphy, etc., it was evident that some connection was necessary so the Almighty in ridding up just swept the odds and ends left from creation together into a windrow, or goose-necked shaped piece of land and called it the neck or Isthmus. By this arrangement Mrs. Grundy could just step across and have a pleasant season's gossip and at the same time censor her neighbors in a friendly way. This is the way the custom of calling first started among the ladies. The neck is thirty to seventy miles wide and long enough to reach. It is rough, uneven, topsy-turvey in contour with well marked vertebrae. Situated only nine degrees north of the equator there is perpetual summer and the abundant rainfall produces a vegetation unexcelled in denseness and grandeur.

The forests are decked here and there with flowering trees magnificent to behold, and though the larger trees are stately within them-

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selves, they lacked the moss of the southern states and the shade-producing power of the northern forests. The country is practically unexplored. Insect and animal life is rife—there are birds of magnificent plumage as well as birds of beautiful song. Wild hogs abound and the cat and monkey tribes are not wanting. Though there are turtles, alligators and serpents large enough to satisfy the most fastidious, candor compels me to state that the most dangerous animal there belongs to the midge family—of which more later.

In the fullness of time Balboa viewed the south sea from Darien, at the same time his hungry eye caught the gleam of gold from both north and south and Spanish avarice and cupidity did the rest. The splendid civilization of Peru and Mexico went down and the thriving city of old Panama sprang up, only to fall before English pirates one hundred and fifty years later. Now only an old stone bridge and a few crumbling walls remain as grim reminders of the grandeur that was.

The Why of the Canal. The dream of the canal is four hundred years old. In 1513, Balboa is said to have carried two ships, piecemeal, across the Isthmus, and in the midst of the task I imagine I hear the grim old Spaniard say, "Manana! Sometime we will make a ditch across here." Its feasibility had been admitted by engineers generally, until Philip II of Spain, gave it a quietus for a time by appealing to the priesthood, who said: "What God hath joined together let no man put asunder." Whereupon he decreed death to any man undertaking to dig a canal. Then there was more time than commerce, and there really was no demand for a canal. But as the country developed and steam navigation and railroads came, commerce developed and conditions were reversed. The demand grew apace and dirt was really thrown at several points. The first serious attempt was begun by the French in 1881. They acquired the right, built and equipped fine hospitals and really did a great deal of work. They spent millions on fine machinery only to let it rust in the jungle. They forgot the old adage an ounce of prevention is worth a pound of cure.

After nine years they succumbed to graft, yellow and malarial fever and went home. Went home did I say? Not all—twenty-two thousand of the best brawn and young blood of France await the call of Gabriel on Monkey Hill—now Mount Hope. The Spanish-American war made the digging of the canal probable. The finding of a commission of United States army surgeons in Cuba made its construction possible, by demonstrating the mode of conveying the yellow fever germs to the patient. When the people of the United States expected a powerful Spanish fleet to be knocking at the front door of the Republic, while the Oregon took six long weeks to sail around Cape Horn, the building of the canal became the sincere desire of the American heart. Now a sincere desire is a prayer, and the American people are righteous, and the prayer of the righteous avails, and as faith is always present with honest prayer, mountains move.

Is there a doubter present? Had he been with me at Culebra cut and seen the granite yield before the drill and dynamite, and a great landslide melt away before a corps of steam shovels, his doubts would be removed. The present landslide will be removed too, in a short time.

The canal zone is ten miles wide and extends from the bay of Colon to the bay of Panama. In 1904 it was a seething jungle, reeking with pestilence, where danger lurked in every shadow and death met the victim more than half way. The home of yellow fever and malaria, smallpox and dysentery were common, and typhoid fever and bubonic plague were not strangers. The Panama Railroad was there and had been since 1855. Its building was a fight for life from the start. It is said that the laying of each tie cost a life. It consisted of the rolling stock, two strings of steel from Colon to Panama, with now and then a switch for a station and a jungle crowding the ties on either side. The biggest things about it were the prices for passenger tickets and the bills for freight.

There are only two cities of any note, and while they are both in the zone, they are not of it. Colon has fifteen thousand people and if Ham did not settle there his counterpart did, and he ought to have his alibi ready. Panama has forty thousand people. There is a very small percentage of white—the rest range in color from a smoked ham or a new saddle to the ace of spades. There are no street railways, few automobiles, numerous jitney buggies, with a very small Indian pony—sometimes two, and a

bell attachment, a dusky driver and an elastic fee bill. It has two banks, one lottery, one sea wall and old fort combined, now used as a prison, three parks, decked with the most beautiful royal palms, one band to furnish music therein; numerous old churches, several bull fights and many cock fights, in which latter the inhabitants show a zeal worthy of a better cause. Their raiment varies from a smile to full dress, and a mantle of indolence appears to envelop all.

Nearly everything from a letter to a steamer trunk or a small freight car is carried on the head. Spanish is the language of both cities. The streets are narrow and until 1904 were without sewerage. They had only the most primitive water supply, depending on open barrels, tanks, ponds, etc., where the stegomyia and anopheles waxed numerous. The United States has furnished a fine water system to both cities as well as paving and surfacing all streets. It has done the same through the length of the canal.

The hospital system consisting of the Colon hospital at the north end with its five hundred beds and the Ancon hospital at the south end with fifteen hundred beds and the twenty odd subsidiary hospitals with equipment equal to anything in the world; with the ambulance cars on a railroad, two trains each way a day, and a medical and surgical personnel that cannot be surpassed, the hospital is amply sufficient.

Through the efforts of Colonel Gorgas, the family physician of the zone, health is as good there as in Illinois or anywhere else. The canal is mildly and irregularly S-shaped; it follows the line of least resistance consistent with shortness. It is fifty-one miles long from deep water to deep water, runs from northwest to southeast, the Pacific being twenty miles east of the Atlantic end. Its minimum depth is forty-one feet, its minimum width three hundred feet, its average is six hundred and forty-nine feet. Its summit elevation of eighty-five feet is reached by a flight of three locks at Gatun, seven miles from the Atlantic. The locks are twelve in number, six double locks (each compartment one hundred ten feet wide by one thousand feet long).

There are forty-six gates composed of ninety-two leaves which open back with the walls; the gates weigh from three hundred to six hundred tons; are seven feet thick and are arranged to make compartments fit ships of any size. Safety appliances are amply sufficient. In addition to the gates large chains are arranged in each lock which drop to the bottom when not in use, but take their places in front of a vessel should it become unruly. All of the gates and all of the machinery, the electrical engines that pull the ships through the locks and the chains that restrain them will be moved by electricity manufactured by the water power near the spillway at the Gatun. Gatun and locks and all light houses and beacon lights along the canal are illuminated by electricity from the same point. At Gatun is located the great dam which harnesses the Chagres river which furnishes water for the canal. The dam is one and one-half miles long, one-half mile thick at the base, one hundred feet thick at the top, which is one hundred and fifteen feet above sea level.

Here also is Gatun lake, one hundred and sixty-four miles in extent, fed by the Chagres river, and the spillway, a part of the dam, a sort of a safety valve to take care of any excess from torrential rains or from any cause. The drowning forests are seen here and I might say the drowning animals also; they were driven to the knobs as the water rose to the normal depth of nearly ninety feet and as the hills were submerged they met their doom. The old line of the Panama Railroad and old Gatun were both submerged.

From the Gatun locks the ship sails on through Gatun lake, Culebr acut, etc., to Pedro Miguel lock, where it drops thirty feet to the fifty-five foot level, sails one and one-half miles over Miraflores lake to Miraflores lock where it drops fifty-five feet in two steps to the Pacific ocean level and sails eight miles to the sea. Vessels sail by their own power except through the locks through which they are taken by means of electrical engines. It takes eleven or twelve hours for a ship to make the entire trip through the canal. The first ship passed through in the spring of 1914.

Here we have the greatest engineering feat of modern times begun under the most unfavorable circumstances in one of the most pestiferous regions of earth, completed ahead of time. How was it done? Efficiency is the answer. The heart of the management as well as the heart of

every employe was in it. The building of the canal is a great thing and every American ought to be proud of it. But the lesson in preventive medicine taught by Colonel, now General Gorgas, in cleaning up Colon and Panama and the line of the canal, rendering it almost as healthy as Illinois, is much greater. How was it done? Schools of sanitation were started along the canal and every employe was compelled to attend.

It is known that stegomyia conveys yellow fever by biting people about twelve days after having bitten a yellow fever patient during the first three days of his sickness. It is known that the anopheles conveys malaria about nine days after having bitten a patient with malaria, and it is known that both provoke profanity whether they have bitten any one else or not. Wigglers are only young mosquitoes and develop into old ones and old ones are very zealous in the production of the young. The life of a wiggler in the water is twelve days, during which time he must come to the surface every few minutes to breathe. The life of a mosquito is from sixty to ninety days and his ability to fly is limited to one hundred yards or a little more.

Advantage was taken of all these points in sanitation. Grass and jungle were cut short for two hundred yards around all points where laborers were employed. Ponds and marshes were filled or drained where possible and a corps of kerosene sprayers were kept spraying all the waters in the neighborhood. Drip cans of larvicide were kept at the head of streams so that when the wigglers came up to breathe they got a dose, and subsequent proceedings interested them no more. All houses were screened and all patients sick from any cause were immediately placed behind screens. All houses in Panama in Colon and along the canal zone were fumigated in one month. Streets of both cities were paved, sewered and a good water system established in both as well as along the canal, thereby doing away with the old barrels in which they domesticated the stegomyia. Garbage furnaces were established, thereby doing away with flies as typhoid carriers. Rats were relentlessly pursued and exterminated thereby doing away with the plague. The remedy for smallpox was easy—vaccination. Yellow fever patients die or get well quickly, ceasing after the third day to be carriers, but with malaria it is quite another thing. Seventy per cent. of the people are afflicted with it and many of them are carriers as long as they stay in the zone.

Quinine, like salvation, was free, only a great deal more tangible. It was kept on all the tables in three or four forms, in all the eating houses in the zone, the same as sugar or salt, and each employe was advised (not compelled) to take five grains once a day as a prophylactic. Dispensers were sent around among the men every day to urge its use in the same manner. In this way it is said that fifteen thousand six hundred pounds of quinine was issued to employes in six years from 1906 to 1912.

Homesickness is a condition that always has to be reckoned with when people are shifted from one part of the country to another or from one country to another. It varies in intensity from a mere longing for the old surroundings to a mania. There may be loss of appetite, insomnia or a depression too deep to be measured. The croak of a raven, borne in on memory from the old home, is sweeter music by far than the cooing of a dove or the song of a catbird in the present situation. Many a young soldier has gone to his grave with his longing eyes fixed upon the old home, when a furlough of a month or six weeks would have restored him to health and usefulness. The treatment is preventive—a trip home when at all grave. *Busyness* is happiness and that is the key to the situation. And that is the way the Government has met the condition in the canal zone. Reading rooms, chess clubs, billiard halls, gymnasiums and bowling alleys have been established by the commission in the more important villages along the canal thus giving the men places to go for amusement.

The club houses are under the trained amusement experts of the Y. M. C. A. and are said to have materially limited the consumption of bad whiskey, and worse beer, beside keeping the men contented. With the women it is more difficult; the men had their strenuous labor during the day to occupy their minds to make them forget their troubles if they had any. Being only temporary residents, household duties were lighter and women having nothing of the gainful occupation of men, had more time to brood over their trouble real or imaginary, and were all the more liable to homesickness. The commission met this situa-

tion also by organizing women's clubs in all the villages. There were musical clubs, card clubs, sewing circles, etc., not to mention the fine dancing halls in the Tivoli Hotel at Ancon—thus giving them amusement and alleviating the situation materially.

The entire cost of the canal was four hundred million dollars. The cost of sanitation, including the cleaning up and paving and the water supply of Panama and the water system of the canal zone, was twenty million dollars—one-twentieth of the entire amount. Three and a half million of the latter sum will be paid back to the United States in fees for water, by the two cities in the next fifty years when the water system will belong to them.

THE LABORATORY SIGNIFICANCE.*

JOHN R. LEDR, PH. D.
CHICAGO.

1. GASTRIC CONTENTS.

In order to make an examination of gastric contents, a special test meal is administered and withdrawn at the height of digestion.

The mostly used meals are Ewald test breakfast, consisting of an ordinary slice of toasted wheat bread not buttered and about one pint of weak tea, without sugar, and the breakfast test of Boas. This consists of a plateful of oatmeal soup, prepared by boiling down to 500 c. c., one liter of water to which a tablespoonful of rolled oats has been added. A little salt may be used if desired, but nothing more. This test meal was devised by Boas in order to guard against the introduction from without of lactic acid, which is present in all kinds of bread. The meal is employed in cases of suspected cancer of the stomach in which quantitative estimation of lactic acid is to be made; the stomach being washed out completely the night before. The contents are removed exactly after one hour from time of ingestion. The patient having been told to incline the head forward and open his mouth as in the act of swallowing food, the catheter is then passed to the posterior wall of the pharynx and gradually pushed down until a slight resistance is felt, indicating it has reached the floor of the stomach.

*Read before the Douglas Park Branch, Chicago Medical Society, Dec. 21, 1915.

The most adaptable stomach tube used by the writer is the Ewald stomach evacuator, consisting of a Nélaton catheter, about 75 cm. in length, provided with a glass sight tube at the aspirating end and a bulb by which means the gastric contents are withdrawn from the stomach.

The technique of introduction should be very simple; the exhibition of complicated arrangements should be strictly avoided, as this only adds to the excitement of a nervous patient. The patient's clothing should be protected from being soiled by some means, as it often happens that some of the material or saliva may be vomited along the sides of the tube.

The bulb is now compressed, attached to the tube, the contents aspirated, and the tube withdrawn.

The amount of the contents varies from 1-60 c. c. If an abnormally large amount is obtained, it is due to so-called hyper-secretion.

Chemical Examination.—The contents are measured, and in case the amount is small, accurately diluted with distilled water, the factor of dilution being used in quantitative figuring of findings.

Next the collor, odor and macroscopic appearance are observed and noted down.

The diluted gastric contents are then filtered, or (better and quicker) centrifuged, until the supernatant liquid is clear. In the latter method the clear juice is carefully decanted into a scrupulously clean, dry vessel and the various tests made.

Total Acidity.—10 c. c. of juice diluted with a little distilled water, are titrated with N/10 NaOH solution, using a drop of phenolphtalein solution as indicator until a permanent pink appears. The degree of acidity is then expressed in terms of the number of ccs N/10 solution which would be required to neutralize 100 c. c. of gastric juice.

Example: 10 c. c. of gastric juice required the addition of 8.5 c. c. of N/10 NaOH solution. For 100 c. c., 8.5x10; 85 c. c. would thus be necessary. The total acidity is hence said to be 85 or $^{85}/_{40}$.

Free Hydrochloric Acid.—10 c. c. of the juice are titrated with N/10 NaOH solution, using a drop of a watery solution of methyl orange as indicator, until a permanent yellow appears. The amount of free HCL is calculated by multi-

plying of the c. c. of N/10 NaOH solution used for neutralizing, by 0.00365, which result gives the free HCL by weight contained in 10 c. c.

Combined HCL.—10 c. c. of gastric juice are titrated with N/10 NaOH solution, as before, using watery solution of alizarin as indicator, until permanent purple appears. The amount deducted from the amount of total acidity, gives the amount of combined HCL.

Acid Salts.—These are estimated by addition of the amounts of free and combined HCL and subtracted from total acidity.

The amount of HCL in gastric juice is clinically very important and it is necessary to distinguish between the different phases as: Euchlorhydria (normal amount of HCL), is absent in chronic gastritis but is present in gastric ulcer.

Hypochlorhydria.—(Decreased amount of free HCL). Is present in diseases where secretory elements have been damaged or as the result of general disease or of local disease, as in chronic and subacute gastritis, some cases of ulcer of the stomach, or the duodenum, incipient carcinoma, and in certain cases of dilatation and atony, or withdrawal of chlorides from the food.

Anachlorhydria.—(Absence of free HCL.) Was not long ago thought to be pathognomonic of carcinoma which view was abandoned, as it was shown that carcinoma occurred in many cases where not only HCL was present, but present in excessive amounts. It was also shown that anachlorhydria exists in almost all cases of chronic gastritis, pernicious anemia and very commonly in neurasthenics, hysterics and in cases of febrile infections.

Hyperchlorhydria.—(Excess of free HCL.) This phenomenon is very common in neurotic patients, where it may alternate with hypo- and anachlorhydria. The same is seen even normally during menstruation. Associated with a continuous hypersecretion of gastric juice, it constitutes a neurosis known as hypersecretio acida et continua (gastrosucorrhea acida).

In a majority of gastric ulcers and carcinomas which have started from gastric ulcer we also meet with hyperchlorhydria.

Very often hyperchlorhydria is found in passive congestion of the stomach, in certain types of mental disease, in early stages of chronic gastritis, during attacks of migraine, etc.

Lactic Acid.—Qualitative tests for lactic acid are many. The quickest, simplest and mostly employed tests are:

Uffelmann's Test.—5-10 c. c. of the clear gastric juice are extracted by shaking in a separatory funnel with neutral sulphuric ether (about 50-100 c. c. are required); the etheral extract is evaporated. The residue is diluted by 5-10 c. c. of distilled water and tested as follows: 3 drops of saturated aqueous solution of ferric chloride are mixed with 3 drops of a concentrated solution of pure phenol, diluted with distilled water, until an amethyst color is obtained. To this solution a portion of the etheral extract is added, when in presence of lactic acid a canary yellow color is obtained. This test, although commonly used, is not very reliable, especially when Ewald test meal has been applied. The better and more accurate test is a Simon's modification of Kelling's method, which is performed in the following manner:

To a test-tubeful of water a drop of solution of sesquichloride of iron is added so as to barely color it. One-half is poured into another test tube which serves as control. A small portion of clear gastric juice is added to the other specimen, when the presence of lactic acid is manifested by a distinct yellow developed at once and which appears more marked if compared with the nearly colorless control.

Quantitative Test for Lactic Acid.—The writer employs the Boas' rapid method, which requires the following technique: 10 c. c. of clear gastric juice are treated with a few drops of diluted sulphuric acid, and the albumin removed by heat.

The filtrate is evaporated on water bath to a syrupy consistency, water added to the original amount and this again evaporated to a small volume, fatty acids being thereby removed. The lactic acid remaining is now extracted with neutral ether (200 c. c. required for 10 c. c. juice), the ether is then evaporated, the residue taken up with water and titrated with N/10 solution of sodium hydrate, using phenolphtalein as indicator.

Percentage of lactic acid is calculated by multiplying amount of c. c. used for neutralizing, by 0.009 and result by 100.

Butyric Acid.—This can usually be recognized by its odor, which is that of rancid butter.

If a more definite test is desired, 10 c. c. of

the clear juice are extracted with ether same as for lactic acid. Residue after evaporation is taken up with distilled water, a little lump of calcium chloride added. Butyric acid will separate out in the form of oil droplets, which can be readily recognized by their odor.

Test for Acetic Acid.—10 c. c. of the clear juice are extracted with ether, as before. The residue after evaporation is dissolved in a little water, neutralized with N/10 NaOH solution, sodium acetate being formed. If to this a drop of a very dilute solution of ferric chloride is added, a dark red color results.

Quantitatively, fatty acids might be estimated by the very simple method of Cahn-Mehring, modified by McNaught. The total acidity is determined in 10 c. c. of clear gastric juice. Another 10 c. c. is evaporated to a syrupy consistency, diluted with water, and acidity found similarly. The difference between the two results will indicate the amount of fatty acids present.

The amount of ferments in gastric juice can be estimated only in an indirect manner, i. e., by studying the rapidity with which a given amount of albuminous material will digest.

The most practical and for practical purposes, satisfactory test is found in application of Hammerschlag's method, viz:

Two Esbach albuminometers are employed.

Tube A is filled to the mark U with a mixture of 10 c. c. of a 1 per cent. solution of egg albumin (the white of one egg diluted 13 times with distilled water) in 0.4 per cent. of HCL and 5 c. c. of the clear gastric juice. Tube B is treated similarly, the juice being replaced by distilled water. After the tubes have been kept in incubator for 1 hour, Esbach solution is added to each tube to the mark R, set aside for 24 hours (or centrifuged after thorough mixing). The difference between the two readings of albumin indicates the albumin digested; this raised to the square, gives the corresponding relative amount of pepsin.

Starchy or carbohydrate digestion test is very simple, it being based upon the reaction with Lugol solution. Starch might be recognized by the fact that it strikes a blue color, while the same solution gives a violet or mahogany brown with erythrodextrin.

Occult Blood.—This is detected by the benzidin test, which is very sensitive.

For this purpose about 2 c.c. of unfiltered gastric contents are mixed with equal portions of an alcoholic solution of benzidin, hydrogen peroxide, and a few drops of glacial acetic acid. Green or blue color appears, when blood is present.

Microscopical Examination of the Gastric Contents.—Aside from fragments of undigested food, the following is found frequently in gastric contents:

Mucus, epithelial cells, goblet cells and sometimes pieces of tumors. Latter should be washed, hardened at once and sectioned for purpose of diagnosis. Among numerous micro-organisms the most important is the Boas Oppler Bacillus. It is generally present in carcinoma, at time when lactic acid can be demonstrated in large amounts. It being an active lactic acid producer its presence might hence be regarded as an indicator of advanced lactic acid fermentation. It is almost always absent in non-malignant disease of the stomach. Lately it has been compared with Bacillus Bulgaricus and found that it is closely related to the former and probably that it is one and the same micro-organism.

Bac. tuberculosis might be found in cases of phtisis, where sputum is swallowed. Other micro-organisms and protozoa are of not much importance.

INDICANURIA.

Among the chromogens appearing in urine, the most important is indican. It is a derivative of indol, being sodium or potassium salt of indoxyl sulphate.

Formerly it was thought that indican could be formed within the tissues of the body in the absence of putrefactive organisms.

Further researches, however, have shown that the production of the same is always in the large intestine.

The normal amount of indican eliminated in the urine cannot be accurately estimated as it varies with the character of diet.

Animal food increases its elimination and milk diet decreases the same. In man the greatest reduction might be effected by ingesting kumys, or kefir, both products of Bacillus Bulgaricus and like micro-organisms.

2. INDICANURIA.

Increased amount of indican is observed in the following pathological conditions:

Intestinal putrefaction, with a few exceptions in cancer of the stomach, ileus, in albuminous putrefaction as in cases of empyema, putrid bronchitis, gangrene of the lung, etc.

In simple, uncomplicated constipation increased indicanuria is not seen.

The tests for indican in urine are various, but all center around the decomposition of the same by hydrochloric acid, when it is split into sulphuric acid and indoxyl; upon addition of an oxidizing agent, indigo blue results.

A very practical qualitative test is the following: To a few c.c. of urine, an equal amount of Obermeyer's reagent (consisting of 2 pro mille solution of ferric chloride in concentrated HCL), is added.

This mixture is shaken with a few drops of chloroform, which takes up the indigo blue that is formed. The resulting extract is normally sky blue or colorless; a darker color indicates an increased amount of indican. If the urine is very dark, it is cleared by means of a solution of subacetate of lead, filtered and tested as stated.

PRACTICE AMONG THE ESKIMO.*

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IROQUOIS, ILL.

Gentlemen, in preparing this paper, I have drawn mostly from memory; having been in government employ, all my case records and reports were the property of the government.

Practice among the Eskimo is the subject of my paper, but I shall also speak of the customs, especially those akin to disease, and which will tend to give you some insight into the Eskimo character.

To render young children strong and healthy, these savages feed them the flesh of young pups or dog's excrements mixed with their food, which sometimes causes their death. I have in mind a case of epithelioma of the lip (one of two cases of cancer seen in five years), which I had treated, of course, unsuccessfully. The native becoming discouraged drank, either on the advice of the medicine man or some ignorant white, a mixture of dog urine and gunpowder. It killed him.

Parents who have lost several children, give the surviving ones to some childless couple, who by adopting them, save them from the death to which they are doomed in their own family. This plan may work well in cases in which the parents are negligent, or too stupid to take proper care of the children, or tubercular; provided the adoptive ones are not the same. But experience shows that the mortality of adopted children is not noticeably less than that of others.

To cure permanently a crop of successive boils, to which these natives are not unfrequently subject, they have two methods, of singular efficacy. The core being carefully extracted is placed in the barrel of a gun and fired off with the load, or else it is swallowed by the patient. The second method might be considered an homeopathic treatment, while the first is decidedly allopathic.

Both, however, in the Eskimo view proceed from the same idea of utterly destroying the offensive germ. In the second case the native theory is that organic matter is thoroughly destroyed by the process of digestion. Another habit fortunately obsolete is that of wives carefully gathering in cups or other receptacles the expectorations of their consumptive husbands, blood as well as pus, and swallowing it. To burn anything excreted from the body would be to them be running the risk of terrible disaster. The puberty customs exclusively concern the woman. They appear to have no notion of age of puberty in males, and though they sometimes impose a new name to a male child about his twelfth year; it seems to have no reference to any organic development. In the case of a girl, the renaming generally takes place when she reaches the age of puberty. They have the idea that women at this time are particularly receptive towards all external influences; hence the principal of assimilation by contact is brought to bear, and all available objects that are possessed of qualities desirable for her are sought for and put in close proximity to her. They also believe that the discharge contains the very essence of feminity, hence the woman must avoid all contact with man; especially young men, as this would render these young men womanish and unmanly.

Of course, no young man who has a spark of

*Read before the Iroquois-Ford Medical Society, Dec. 7, 1915, at Watseka, Ill.

ambition would willingly expose himself to blight thus the rest of his earthly career, nor would a young woman bring this misfortune upon him and so the puberty rules are rather scrupulously observed.

I have never heard of a case of legal impurity contracted by a woman in this condition.

Making due allowance for honorable exceptions it must be said that it is a notion among these people, and one that does no credit to their morality, that menstruation is a consequence of previous sexual intercourse. Thus in certain localities girls generally with the full consent of parents or guardians have intercourse with a man preferably married to have the first catamenia.

In other places, notably on the Yukon, it goes otherwise, and when the phenomenon first occurs to one she receives a severe scolding as though guilty of misbehavior.

If it is in winter a small space is curtained off from the remaining space by a piece of canvas or blanket; if in summer a tent is erected for her outside. This is the retreat chamber in which the young woman eats, sleeps, works and muses. She is conducted to it by the oldest woman in the camp, who also administers to her a mixture of water and oil extracted by boiling from salmon heads which have undergone partial decomposition under water and some dried slices of white fish. The grease is put in so she will always have grease in her mouth, which is equivalent to saying that she may always have food in abundance. Solemnly presented the beverage is swallowed with equal solemnity. Then follows a sort of lecture in which the old woman presents herself as a pattern of all womanly virtues and inquires from the girl if she will conduct herself in the same praiseworthy manner. She naturally answers that she will. During the month of confinement, she cannot speak to any man; not even see his face, much less touch his clothes or any object belonging to him. No evil would ensue for her but the misfortune would be all for him. When she has to leave the place for the necessities of nature, she must do so unseen. She generally goes out late at night after the others are in bed or early in the morning before they are awake. She wears a long parkie with a long hood. This hood is called the flabby cap, which is pulled over the eyes before leaving and kept down as long as she remains out. She is not allowed to undress but sleeps with all her clothes on, even her mittens. In these as well as her stockings she has some decayed birch wood ground to a fine powder. This that her hands and feet may remain dry throughout her lifetime.

The Eskimo value this circumstance because of the frequent occasions on which they are exposed, and which in extremely cold weather sometimes means freezing them. In her stockings she also wears next to the skin the horny soles cut off from the porcupine's feet that during after life her footwear may never wear out.

Around her waist she wears a cord tying the drawers on which are strung the heads of femurs of the porcupine. These are sawed off from the bone and perforated for the purpose and a supply of them are always on hand. Besides this she wears another porcupine cord of a peculiar nature. When a porcupine is killed and its bowels are taken out they contain the feces in small round balls distributed along the intestine and about three or four inches apart. The guts and contents are put to dry in this condition and when a girl "goes apart" one of these strings is given to her. She sews it inside of a belt which she wears around her waist during the period of sequestration.

These cords are to enable her to bring forth children without difficulty. The porcupine of all animals known to the natives is the one that has the easiest parturition. It lays the young without effort, just momentarily interrupting its walk to deliver itself of them and then resuming its motions as if nothing had happened.

The porcupine cords are intended to make the women porcupine-like in this important function. The Eskimo are convinced that they possess in this a great secret, and that the women of the white race suffer so much in labor because they don't know this.

To the same end, if during a woman's sequestration some one kills a female porcupine with young the feti are given to the woman, who slips them within her shirt and makes them slide through down to her feet to obtain the porcupine facility of delivery. She is allowed no fresh meat during the whole month except the flesh of porcupine.

Dried meat, fish and marrow constitute her diet.

She cannot drink from the common cup, but has her own tableware and uses no other. She sucks water through a swan's bone which is afterwards tied around her neck. It serves together with the parkie to acquaint others of her condition.

A menstruating woman cannot sleep with her husband, more especially if he is young. She makes her bed apart from his, and both husband and wife sleep with their blankets over their heads that the effluvia of feminity may not pass from her to him and blast his manly abilities. After the flow is over; she has to wash herself from what may remain. If, however, she would happen to be very busy as during the salmon run, it is sufficient for her to wash her head very carefully.

The menses represent to the native mind the life giving principal; hence is much used as a medicine.

The substance is at times obtained by washing in a basin of water rags soiled with it. The liquid is then used as a lotion, to bathe young children or even administered to them as an internal remedy. Mothers believe that by so treating their children they preserve them from disease although the reverse frequently happens.

I remember such a case at Mouse Point, a village on the Yukon; where a healthy child was made to drink some of this medicine and the following morning it was seized with an eruptive fever which within twenty-four hours had covered the whole body with red patches. Soon, however, the fever subsided and the patches turned into running sores which did not heal for nearly a year.

In these would-be medical practices the mother always obtains the soiled rags from some other woman, never using her own, the idea appearing to be that the child has already received her entire stock of vital power; so she draws on others.

Now these people are quite faithful in their observance of these superstitions and others. Of course, individuals may disregard them at times, but they will never do so openly, and take care to persuade themselves and others as well that they are observing the customs even while acting against them. One may safely say that they tend to maintain a certain standard of morality.

When the savage is brought into contact with whites and begins to disregard these superstitions, unless something can be substituted, the contact with our civilization invariably proves fatal to the race. I hope at some future time to take up other customs, especially those concerning pregnancy and childbirth.

SYMPTOMS.*

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ELDORADO, ILL.

Gentlemen: For the lack of a better subject I head my few remarks, "Symptoms." The idea of this paper is to gather all those symptoms which we find at the bedside, leading to a differential diagnosis, or, at least, rendering some aid. In the typical cases, especially if well developed, the diagnosis in many cases is easy. But in the atypical ones often we are at a loss, especially during the development of the case.

Do not feel that I think I have named all the symptoms in any given case I may mention, but I mention those that I think have assisted me. So it is with these special symptoms my paper shall deal, and, of course, I shall only speak of a few of the many cases that could be mentioned. So, after I have given you my few, then let us have what you have gained.

Also, please remember my remarks are more for the general practitioner than for the expert diagnostician, or specialist. Also, further, you will note I have made no special classes into which cases have been divided, as such could not very well be done with symptoms as I am giving you.

For at the bedside of the patient often we are at a loss, or, at least, somewhat doubtful as to our diagnosis. Please do not think I mean to infer that all this is my bedside experience; but I shall give you, as best I can, *the* symptom, or train of symptoms, that appeal to me in certain cases. 'Tis true that many times in watching the development of a case, we change our diagnosis from that made from initial symptoms. Furthermore, after the use of the laboratory or microscope, also we may change or confirm our diagnosis.

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*Read before the Southern Illinois Medical Association, Nov. 4, 1915.

Each physician more or less is very likely to follow into a certain line of treatment for certain cases; the same may be truly said concerning his symptoms for his diagnosis.

True, the authorities give us a symptom or line of symptoms by which we are to be governed in certain cases; yet, with all this, we boil it all down and in the course of time select a symptom or train of symptoms that appeal to us more than others.

Pain is one of our most common symptoms for which patients seek relief. Pains are of different kinds and may occur periodically.

For instance, a pain in the top of the head as of some one catching the hair and pulling it is often found in females suffering with some menstrual derangement.

A pain in the occipital is often found in catarrhal conditions, especially when the patient is out in the cold wind. A pain in the mastoid from an invading otitis media; in which case you have an elevation of temperature.

In the temporal region and over or in the eye, from eye-strain.

Migraine often from indigestion—being more acute and probably throbbing from the stomach; depressing and more stupifying when in the intestines.

Pain on the side of the nose, especially when breathing in the cold atmosphere, from hypertrophied middle turbinates; near the nose on cheek when antrum of Highmore is involved, and in such case we may have an elevation of temperature; pain circling over the eye when frontal sinus is involved, with which there may be an elevation of temperature; pain within the ear, commonly called "ear-ache," when middle ear is affected, and the tympanic membrane is intact, or exit to external surface closed.

Pain in the cervical region near angle of submaxillary, with fever, in affections of the tonsils; white spots showing crypts involved—if a membrane and does not bleed on removing—membranous croup; if membrane bleeds on removal, or if membrane extends beyond the tonsillar tissue, diphtheria. Croup and laryngeal diphtheria are to be guarded for—if no elevation of the temperature, probably croup—if elevation of the temperature, be on guard for laryngeal diphtheria.

A pain in the chest wall more intense with pressure, so-called "muscular rheumatism"; if in inter-costal space, probably neuralgia.

Pain with a deep inspiration, pleuritis; or if fever, lobar pneumonia.

Pain just below the point of the right scapula in affections of the liver is well known.

Cabot says, "Pain with a sense of constriction is of great diagnostic value when it occurs in the precordial region, pointing, as it does, in the great majority of cases, to angina pectoris."

Pain in gastric region immediately after meal, acute indigestion in stomach—often associated with the vomiting of undigested food; the gnawing pain when the stomach is empty, hyperhydrochlorhydria, or peptic ulcer.

Epigastric pain, emaciation, gradual onset (according to history given by patient) vomiting of blood, in cancer of stomach.

By the way, when you see a patient in the more mature years, with skin a little sallow, the mucous membrane of the mouth and tongue red or maybe paler than normal, edge of gums paler than the other mucous membranes, and especially a free flow of saliva, I shall not say, but wish to ask: What do you suspect?

Often we have an epigastric pain in appendicitis; if it be the first attack, with little or no elevation of temperature and shortly subsides, we may be at a loss about our diagnosis. Should it be a repeated attack with fever and relieved more or less by flexion of the thigh, then we think of appendicitis. We would have a similar train of symptoms, except there might be jaundice and probably no elevation of temperature, in affections of the gall-bladder.

In fevers due to some local infection, ordinarily the point of infection is referred to by the patient, tetanus being one often overlooked, as the wound may have been healed several days, and the paroxysmal attacks being the first symptom to arouse the family.

Concerning the eruptive fevers: In chickenpox and smallpox you see the eruptions—history of past twenty-four or forty-eight hours may be hidden or confused by the family—patient may or may not have been successfully vaccinated—(however, I have never seen a case of anything like a well-developed form of smallpox in a patient who had ever at any time been successfully vaccinated, regardless of the date of the vaccination) the nature of the papule or vesicle will

determine. If the papule or vesicle be regular, pointed, and the base truly circular, you may call it smallpox; if the eruption is not as just described but universal over all the body (i. e., not in crops), you may call it chickenpox, even if there has been no successful vaccination, and even if you have eruptions in the palms.

If you will allow the term, smallpox eruptions as they have appeared to me, give a very similar appearance to a segment from the smaller end of a goose's egg.

Another case: Often when a case gives a history of a fever for a few days, such history gathered from the family and the presenting symptoms, often I question whether I have malaria or typhoid. Many times I have found the following symptoms aid me in my diagnosis: If the eyes have a glassy appearance and the patient feels better in the morning, I think more strongly of typhoid; if vice versa, and the skin has a bluish, muddy and shiny appearance, I think more strongly of malaria.

Take measles and scarlet fever: You may see the patient on the first or second day of eruption, or even before. In scarlet fever often there is vomiting; eruptions appear on face and neck; or they may be on the chest, and the family tell you that the day before the patient's face was very red. In such case you would have a progressive eruption, which points to scarlet fever; in measles the eruption appears universally and simultaneously.

Again, a patient may call, stating that he has a foreign body in the eye. You look and see no foreign body in the eye and tell him so. His eye still pains him, and if you do not relieve him he seeks aid elsewhere. In many of these cases, by close observation, you will find a slight wound of the cornea.

Again, take cases of vomiting; especially in meningitis is this a leading symptom—meningitis from an infection in itself, or as a complication, which is common, of intestinal troubles with children.

Vomiting blood: Dark blood from the stomach; if bright red, probably not from the stomach.

Blood in the stools: The following has been given: Blood adherent to a well-formed stool generally comes from the rectum or anus (hemorrhoids). If evenly distributed in the feces, and of a brownish color, it would suggest a hemorrhage either in the stomach or in the upper part of the small intestines, especially if the stool be solid. Evenly distributed blood in a fluid stool suggests the colon as the seat of trouble. Tary black blood usually points to trouble in the stomach or duodenum. Fluid scarlet blood generally comes from the colon or the rectum.

Further, when considering the importance of blood in the feces, care should be taken to exclude blood coming from the mouth, the nose, the throat, the lungs, or even the vagina.

As I have said, in this paper I could mention only a few cases, compared to what might be brought out.

In fact, I have only meant in this paper to open the subject to the meeting, that we may *each* share the spoils of the *many*.

DISCUSSION.

Dr. Grinstead: This paper deals with indications and conditions that we are all guided by every day of our lives. There was only one point in the paper that occurred to me as requiring a little threshing out—the pain in the stomach from appendicitis. Pain from appendicitis is usually below the level of the navel, except for the first few days. The appendix gets its nerve supply from the same source that supplies all of the mesentary. Pains in the stomach and above the navel should make us think of gall bladder diseases or gall duct diseases or of ulcers about the pylorus or duodenum. Several years ago Dr. Jones, of Missouri, explained the deep boring pain in the stomach region, which attends gall bladder and gall duct diseases, by showing that the nerve supply to the diaphragm comes from the last four dorsal vertebrae and the two upper lumbar vertebrae is distributed in part to the diaphragm the terminal branches going to the gall bladder, which accounts for the pain in the gastric region from gall bladder and gall duct diseases.

Dr. Jones, closing: I was glad to get Dr. Grinstead's idea concerning appendicitis and the point is that the case that he spoke of was afterwards operated on and the appendix was pointing to the gastric region.

FRACTURE OF ELBOW JOINT.

FRANKLIN B. McCARTY, M. D.

CHICAGO, ILL.

In all fractures about the elbow the avoidance of deformity and limited function is of the utmost importance to the patient since impaired usefulness of this joint not only makes dressing and eating a considerable task, but directly decreases the earning capacity of the individual. Treat-

ment of injuries about the elbow, therefore, requires especial attention in view of the extensive injury sometimes following comparatively slight trauma and the consequent deformity and disability following overlooked lesions or inadequate treatment. The following case is cited as showing some variation from the usual type of injury in the general run of such fractures, particularly with regard to the dislocation of fragments:

Miss S., aged 35 years. The patient, who is of slight build, slipped and fell to the sidewalk, striking on left hip and left elbow without particular violence. When seen shortly afterwards she was unable to move the left forearm or hand and the elbow showed extensive edema and ecchymosis, with crepitus at the lower end of the humerus and dislocation of the whole forearm forward. Sensation and radial pulsation were unimpaired. X-ray showed a supracondylar fracture of the humerus extending from above downward and backward with separation of condyles and dislocation of the external condyle outward and forward and of

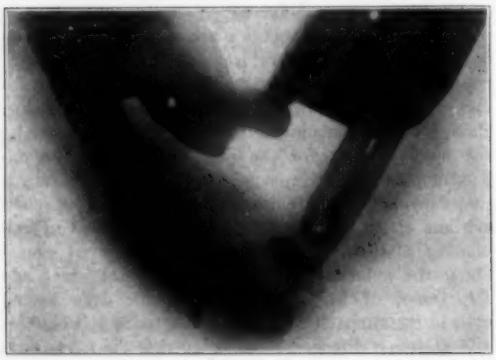

Fig. 1. Supracondylar Fracture of the Humerus.

the internal condyle inward and forward. The shaft of the humerus was placed downward and backward in relation to the forearm, the reverse of the usual dislocation in such fractures.

After reduction of edema by ice bags an attempt was made at reduction under ether anesthesia, traction being applied on the forearm with lateral pressure over the condyles, and the arm was fixed in acute flexion. X-ray showed practically no improvement in position and one week later open operation and suture of fragments was done.

Operation.—A 3½-inch U-shaped incision with the convexity downward was made over the elbow, the incision being carried down to the triceps fascia. The ulnar nerve was identified, dissected from its bed, and retracted with a gauze strip. The fascia was then divided transversely across the joint, avoiding the ulnar nerve and preserving the fibers of the fascia of the triceps which continue down on the outer side of the arm over the anconeus muscle to join the deep fascia of the forearm. The humerus showed a supracondylar fracture extending obliquely downward and backward with dislocation of the humeral shaft backward and of the forearm forward and upward, and a vertical intercondylar fracture extending into the joint. The external condyle, the smaller fragment, lay external and anterior to the radial head, beneath the brachialis anticus, and the internal condyle lay internal to the coronoid process of the ulna. The fragments were reduced by manipulation and were found to remain in position with least tension with the forearm in acute flexion and full supination. A hole was drilled through each fragment and through the shaft of the humerus and with heavy kangaroo tendon sutures the condyles were sutured to each other and to the shaft. The wound was closed in layers and position maintained by a plaster bandage from axilla to hand, the arm being held in acute flexion and supination. Operative convalescence was uneventful, and the temperature did not rise above 99 degrees at any time. The plaster was divided on the tenth day and fair sized soft callus found at that time. Passive motion was begun at that time, with the fragments held firmly in either hand to prevent undue motion. From this time union progressed rapidly and at 18 days the callus was quite firm with little flexibility of fragments. Active motion was begun, at this time increasing to the point of producing pain and the plaster was omitted at four weeks.

At the end of three months the arm showed a limitation of about 5 degrees in flexion and 10 degrees in extension with the carrying angle intact and was used in performing ordinary lifting and household work.

This type of injury occurs relatively often with an apparently slight degree of violence, the amount of damage being apparently all out of proportion to the trauma, due to the leverage exerted by powerful muscles having attachment about the elbow. The mechanism of the injury is probably a direct force acting on the olecranon, while the elbow is acutely flexed and the force transmitted forward and upward against the lower end of the humerus, the greatest strain being applied at the thinnest and weakest portion of the structure just above the condyles, the result being a transverse fracture at this point. The force from the olecranon is also transmitted directly to the ridge along the middle of the greater sigmoid cavity and this causes a vertical fracture between the condyles. That this is the case would be suggested by the fact that the line of transverse fracture, obliquely downward and backward, is directly in the line of such a force. T-fractures are very infrequent in children, whereas simple supracondylar fractures are comparatively common.

The usual position of fragments is with the lower fragments pulled upwards by the action of the brachialis anticus anteriorly and the biceps posteriorly and to be dislocated backward behind the upper fragment by the action of the triceps so that the lower end of the humeral shaft may be palpated in the ante cubital space, while the lower fragments rest against

the triceps fascia, with more or less overriding of fragments. Lateral dislocation varies, but is usually moderate and reducible. In this case the dislocation was rather unusual in that the upper fragment was dislocated backward and the lower fragments forward and divergently outward, and the whole forearm was dislocated forward and upward in relation to the humerus. This was probably due to the fact that the separation of fragments prevented the triceps from exercising any pull and the fragments were drawn downward and away from the median line by the flexor and extensor groups of muscles of the forearm which have their origins at the condyles. The dislocation of the internal condyle was limited by the insertion of the brachiales anticus and that of the external condyle by the prolongation of the triceps fascia into the forearm. Reduction of such injuries is often accomplished at the expense of a considerable widening of the intercondylar space, loss of normal relations of condyles, excessive callus, and occasional non-union.

As in all fractures at or near joint cavities, careful apposition of fragments is essential, for by this means the size of callus about the joint is minimized. Fragments which are separated by a considerable distance, and whose surfaces are constantly bathed in synovial fluid fail to unite readily. With union of fragments occurring where there is considerable lateral displacement of condyles the joint is widened and the normal obliquity of the joint surface is lost. In a normal elbow the internal condyle is about ¾-inch lower than the external condyle and the trochlear surface of the humeral articulation inclines upward and outward so that in extreme flexion the forearm and arm form an angle of about 30 degrees, the hand being carried to the junction of the outer and middle thirds of the clavicle, whereas in extension the supinated forearm forms with the humerus an obtuse angle away from the body, the so-called carrying angle.

In operative procedures on joint cavities emphasis should be laid on careful preparation of the part, close approximation of fragments, avoidance of undue force in the already traumatized tissues and rigid maintenance of asepsis. It is advisable to wait about one week after injury to allow for edema to subside and for absorption of infiltrated products. The use of absorbable material in and about joint cavities is advisable, and either kangaroo tendon, heavy chronic catgut or bone pegs are satisfactory. Early motion is indicated, the exact time depending on the rapidity of repair, callus being sufficiently firm to permit guarded motion, as a rule, in ten days to two weeks. The greatest care must be exercised to support the site of injury, and motion should be limited to a range which produces only moderate pain, otherwise irritation and increased callus may result. Healing progresses more rapidly in cases which have been operated on due to accurate apposition of parts and for the same reason there is less tendency to excessive callus. Active motion can thus be started somewhat earlier than with cases not operated on.

Unsatisfactory results may be due to deformity, limitation of motion or nerve injury. Deformity may be caused by widening of the intercondylar space, to a change in level of the condyles with consequent loss of carrying angle, or to displacement of both fragments and forearm. Limited motion may be partial or complete. Loss of flexion is due either to excessive callus between the coronoid process of the ulna and the humerus or to dislocation of the upper fragment forward. Loss of extension is a result of callus in the olecranon fossa impinging on the olecranon process, or to dislocation of the upper fragment backward. Ankylosis, either complete or nearly so, is a tremendous handicap to the patient, for there is no position in which a satisfactory result can be obtained. Ankylosis may result from excessive callus about the joint, from extravasation of blood into joint and tendon sheaths with subsequent fibrous degeneration, or from prolonged immobilization which may produce contraction of muscle, shortened fascia and ligaments, thickened and shrunken capsule and fibrous changes in articular cartilage. Nerve injuries are limited practically to the ulnar and median nerves, more commonly the former, and may occur immediately after injury through pressure of callus or apparatus and produce the typical claw hand with overextension of the first phalanges and flexion of the remainder.

OUR HOSPITAL*

GEORGE W. ROSS, M. D.
WATSEKA, ILL.

Mr. President and Members of the Bi-County Medical Association:

I have chosen this subject both on behalf of the trustees of the hospital and to better acquaint you with the aims, purposes and methods of management of this "Our Hospital."

I say "Our Hospital" for it has been erected and equipped by the philanthropy of Mrs. Anna H. Donovan and other public-spirited citizens for the use of the general public of the city of Watseka and Iroquois county. That does not necessarily mean that its use is limited to the county, but that its needs shall be first taken care of.

It shall be the aim of this hospital to become a factor in the life of this community and the limits of the community ought not to be the city of Watseka and its immediate adjacent territory, but the whole county and even our neighboring counties. The common factor of all hospitals is to try and make the sick well. Another factor of this hospital will be to educate both the general public and the physicians, who will avail

*Read before the Iroquois-Ford Medical Society, December 7, 1915, at Watseka, Ill.

themselves of its use. The hospital and its doings will constantly stand out before the public, thus keeping them constantly interested and of necessity better informed. The community will discuss the hospital and its doings, and healthy discussion is education. The physicians coming in more intimate contact with each other will naturally gain new ideas and methods and naturally broaden out. Thus we shall have a community more enlightened on subjects medical and thus more easily managed and reasoned with and a more efficient group of practitioners. Education recognizes efficiency, begets confidence and makes success.

The purpose of this hospital is to furnish care and attention to the afflicted.

Quoting Smith in the *Journal A. M. A.*, of recent date, "It is an accepted fact that today a person who is actually ill with any serious illness requiring medical or surgical attention stands a much better chance of recovery if he receives treatment in a hospital."

We see that a community without a hospital has a serious handicap and is not getting that which is justly due it. It is, also, an established fact, that physicians in communities without a hospital do not measure up with those in communities with hospitals.

Its purposes shall be to reach out to those who otherwise cannot afford hospital treatment. While this is not an endowed hospital, part of its running expenses is appropriated by the city of Watseka and Iroquois county, thus opening its doors to the poorest citizen. While a part of the running expenses come from the aforesaid sources, it is not to be a charitable institution entirely. Most of the hospitals of this country are either charitable institutions or rich men's havens, but this institution shall cater to all three classes. It is getting enough support to accommodate the poor who cannot pay and at the same time bring down the prices to those in moderate circumstances to bring it within their means. On the other hand, we will have accommodations for the most fastidious.

The method or management is one that ought to meet the approval of all. Its foundation is justice to all. There will be no attending staff; each to bring his patients will have full and absolute charge of them. The physician who comes only occasionally shall receive the same treatment from those in charge that the one who comes often shall receive. The local physicians shall receive no more favors than the one in the most remote districts of the county. There will be no tampering with patients and favoritism to physicians will not be tolerated. To repeat—Justice and Equality shall be the foundation of the management.

The building is thoroughly modern and will be completely equipped in all its departments. It is ideally situated in the outskirts of town, giving an abundance of fresh, wholesome air and quiet, and at the same time easily accessible.

We, as physicians of this community, ought to be proud of so beautiful a building in which to carry on our work. All praise should be given the trustees in their untiring, faithful and efficient work and last, Mrs. Donovan, who made the building of this building a possibility, should and does receive the praise due a public benefactress.

PELLAGRA, WITH REPORT OF CASE.*

ROBERT L. KANE, M. D.
RALEIGH, ILL.

Pellagra is an endemic tropho neurotic disease of dietary origin, affecting the cerebro, spinal, digestive and cutaneous systems and having a tendency to seasonal recurrence.

The existence of pellagra can be traced back to the latter part of the seventeenth century, where it was noticed in certain parts of northern Italy, southern France and certain districts of Spain.

It was first described by Frapolli, one of the physicians to the Hospital of Milan, in a publication which appeared in 1771.

Dr. M. Billod described a similar disease which was prevalent among the insane in the asylum of Rennes and Angers.

Pellagra was first reported to the Royal Society of Medicine in 1829.

In the southern states sporadic cases have been reported for the last twelve or fifteen years but not until 1906 was the nature of the disease known.

Two ideas are held by members of the profession. The idea that pellagra is due to intox-

*Read at the forty-first annual meeting of the Southern Illinois Medical Association at Harrisburg, Nov. 4, 1915.

ication by some product of deteriorated maize was formerly almost universal and even now the Italian government spends a large amount annually for maize inspection and destruction of deteriorated maize and its products.

Dr. Joseph Goldberger, of the United States Public Health Services, in Public Health Report, stated the following conclusions:

1. That pellagra is not a communicable (neither infectious, nor contagious) disease, but that it is essentially of dietary origin.

2. That it is caused by eating a diet in which the animal or leguminous protein component is disproportionally small and non-leguminous vegetable component is disproportionately large; and that no pellagra develops in those who consume a mixed, well balanced and varied diet, such for example as that furnished by the Government to the enlisted men of the army and navy.

Furthermore, in the diet of those developing pellagra, there was noted a disproportionately small amount of meat or other animal protein food, and consequently the vegetable food component, in which corn and syrup were prominent and legumes relatively inconspicuous elements, forms a disproportionately large part of the ration.

The inference may, therefore, safely be drawn that pellagra is not an infection, but that it is a disease essentially of dietary origin due to absence from the diet of essential vitamines, or possibly, as is suggested by Meyer and Vogtling's works, by the presence in the vegetable food component of excessive amounts of a poison such as soluble alumin salts. The condition which favors the occurrence of pellagra, is similar, at least in some degree, to that producing such other nutritional diseases as, for instance, beri-beri or scurvy.

In Europe, poor hygiene, poor food and poverty are unquestionably important factors in the etiology.

The corn theory has been the most strongly advanced in Italy; we might summarize the different factors in which Indian corn plays an important part in the etiology of the disease as follows:

1. Indian corn is deficient in or lacks some nutrient principle necessary for health, and pellagra results from a diet limited too strictly to that cereal or its products.

2. Corn contains some toxic substance which in susceptible individuals produces the disease. Corn undergoes some form of decomposition in the intestines of some individuals as the result of growth of bacteria, the toxins thus produced exciting the disease. Healthy corn might be innocuous, yet at some stage in its production or consumption it might undergo decomposition, as the result of the growth of certain fungi.

Various molds and bacteria have been isolated and assigned an etiological role in the disease: such as Boeterium maydis, Bacillus pellagrae.

The second group claims that pellagra should be classed as an infectious disease. The method of infection as well as the causative organism both remain to be discovered. There are two methods of infection to consider possible: Transmission by insects, as in malaria, yellow fever and the bubonic plague and transmission by infected drink or food taken by the mouth, as in typhoid.

The fact that pellagra presents the typical picture of a plague, a disease showing distinct pathological entity, which has in a few years spread over a vast new territory, classes it as clearly as an infection due to a living organism as the spread of any other plague or infectious disease.

The severity of the disease and the mortality rate have both decreased. This is the rule with all infectious diseases when invading new territory.

So with pellagra, intense cases were seen at first and now the average is more moderate and the death rate lower. The annual mortality rate in pellagra was 30 per cent. in 1909 and only 10 per cent. in 1913. Several insects have been investigated, such as the fly, bad bug, flea, tick, louse, cockroach and mosquito, but no positive evidence incriminating any one has been discovered.

The fact that a large percentage of pellagra cases dates their first onset from a supposed attack of ptomaine poisoning is suggestive of a possible dietary or toxic origin of the disease. In districts where the disease is endemic it attacks persons of all ages; women are affected more frequently than men, some giving the ratio 4 to 9.

As to occupation: in Europe, the sea laborer suffers most; in America nothing has been determined in this regard except the investigation by the Thompson-McFadden commission, in which a large proportion of cases were found among women employed in housework.

The disease seems to be confined to the tropical and warmer sections of the temperate zone;

otherwise climate appears to exert no influence in the etiology. All observers agree that even in pellagrous sections the disease is more or less restricted to certain localities.

Attempts at transmission of the disease have usually been unsuccessful. Harris was successful in producing in monkeys symptoms resembling human pellagra, employing subcutaneous, intravenous and intra-cranial injections of a filtrate prepared from human pellagrous tissues.

For convenience I have divided the symptoms into three general divisions—gastro-intestinal, nervous and cutaneous.

The first symptoms are usually concerned with the gastro-intestinal tract.

The stomatitis reminds one very much of aphthous sore mouth; the tongue becomes swollen and denuded, presenting a dry appearance, in severe cases with more or less superficial ulceration along its edges and upon its under surface with yellowish sloughing which bleed easily.

The entire buccal mucous membrane of the pharynx and larynx may also present a similar inflammation.

The first evidence of gastric derangement is usually a slight but progressive indigestion, with a marked flatulence, followed later with extensive watery diarrhea in severe cases; in mild cases constipation may be present.

The motility of the stomach is increased in the first stage, but in the last stage there may be complete paresis.

Hydrochloric acid and pepsin are absent—a very valuable diagnostic symptom.

Other organs may show evidence of a toxic condition; for instance, vaginitis, endrometritis, and nephritis with polyurea and albuminuria, which indicate that the system is charged with a poison and every organ is doing its best to rid the body of noxious toxins. As the gastro-intestinal symptoms advance we will notice various nervous symptoms very similar to those produced by acute intoxication.

An important observation was made by Wilgus and Singer, who noted in the terminal stages in pellagra, the symptom complex also described by Myer as that belonging to central neuritis.

In examination of pellagrous patients at Peoria, Bassae found changes in the reflexes suggesting the following: 1. Probably pyramidal tract degeneration. 2. Posterior column degeneration. 3. Combined degeneration.

In the recurrence that takes place from year to year the general symptoms become more marked; there is tenderness upon pressure over the spinal nerve, muscular weakness and loss of muscular power especially in the legs; mental worry and depression, anxiety and discontent, loss of memory, vertigo and in some acute mania occurs.

The patella reflex is always exaggerated in the first stage, but becomes diminished and finally lost in the last stage.

Various paralyses may occur, such as spastic paralysis, ptosis, diplopia, amblyopia and mydriasis.

There may also be involuntary evacuation of the bowels and bladder near the end of the scene.

In observing the development of the skin lesions, it is noted that at first they are large or small muscular lesions of light or dark red tint which soon fuse, forming a patch of dermatitis resembling a sunburn.

As the evolution of the disease advances the color of the lesions deepens and assumes a reddish brown or dark purplish blue. Early in the process there may be marked swelling and in the more active cases on the erythematous base there develops bulbous lesions, which ay be large or small.

In from one to two weeks desquamation begins, lasting from a week to several months. When desquemation is complete there remains a delicate, smooth complete skin.

Destruction of the epidermis may be so complete that a glove like cast of the hand can be removed. After several recurrences the skin finally becomes hard, roughened, scaly, pigmented, loses its elasticity and the normal lines are exaggerated.

Another symptom which is always present is a decreased hemogloblin, being 80 or 90 per cent. in the early stages of the disease, but finally reaches 50 or 60 per cent. in the last stages.

TREATMENT.

No antidote or specific for this insidious unidentified poison has thus far been discovered.

Mild cases will recover without treatment, because of this fact, many remedies have been credited with being effective, and some as being specific.

Salvarsan, the one most widely lauded as a specific, has been tried with indifferent results and many deaths have resulted by its use.

The treatment most widely used is the gastro-intestinal antiseptics and dietary.

A large number of antiseptics have been used, such as salol, sulphocarbonate, beta naphthol, sulphur and freshly prepared chlorine water.

When there is a deficiency of hydrochloric acid and enzymes in the gastric secretion, hydrochloric acid and pepsin should be given.

The diet is of the utmost importance. Goldberger of the United States public health service recommends a diet consisting of milk, fresh meat, eggs and plenty of peas and beans.

For the skin lesions, a soothing application acts best, such as zinc oxide combined with sodium hyphosulphite and resorcin.

Some form of salicylates will usually relieve the neuralgic pains; for the neuritis developing in every advance case, dilute phosphoric acid and nux vomica are usually beneficial.

The stomatitis will usually yield to ordinary alkaline mouth wash, but in obstinate cases silver nitrate may be used.

The pellagrous case, of which I shall give a short account, came to my office April 19, 1915, seeking relief for a persistent diarrhea; also mentioned that the back of his hands were slightly inflamed due, he thought, to working in cement. The diarrhea, he said, was due to a chronic indigestion dating back several years.

He had lived in Oklahoma from 1902 to 1908, when he moved to Arkansas, where he lived until March, 1915; at which time he moved to Illinois. In 1913 he spent most of the spring and summer in New Mexico, and attributed the attack of excessive diarrhea to the water of that State.

When first examined by me, I found only the macular eryphematous patches in the center of the dorsal part of the hand, and a very much distended and tender abdomen. The pulse and temperature were normal.

A few days later the small erythematous patches had spread over the entire dorsum of the hand. The stools were more frequent, of ash gray color, very watery and amounted at times to almost a gallon at each evacuation.

There was evidence of nervous disturbances, with depression, anxiety and discontent.

May 6 I found my patient suffering from, as I thought, a well developed case of pellagra.

The stomatitis had developed, the hands were beginning to shed the old skin, leaving a perfect new skin beneath.

There had developed new areas of dermatitis on each cheek, also on feet, legs and hips. Temperature 101.5, pulse 86.

I prescribed the following treatment: For the stomatitis a simple alkalin thymol compound; a powder consisting of bismuth subnitrate, pulv. ipecac, peptenzyme and pulv. saccharine; for the diarrhea, a solution of sodium hyposulphite, resorcin and zinc oxide, for dermatitis.

All symptoms, so far as I could tell, had disappeared by Sept. 3, 1915, the patient having gained 18 pounds in weight.

A house without a plentiful supply of pure, fresh air in it all the time is a mighty poor house to live in.

"Calcidin for colds"—should be the first thought every time you prescribe for the prevailing influenza. You know the value of iodine to sterilize the skin or an infected wound area. Ever stop to think that iodine is eliminated by the respiratory tract, just where it can do the most good in bronchitis, tonsilitis, and the like?

It will be noted that in this issue Dr. Broughton's Sanitarium advertisement has been changed to Dr. Weirick's Sanitarium. This is not a material change, as the management remains the same and the business is being conducted along the same lines as heretofore. This is evidenced by the fact that for eight and one-half years Dr. Weirick has been connected with the institution—five as Assistant Superintendent and the balance as Superintendent. He now has associated with him Dr. W. H. Cunningham, who is a very capable man.

It is interesting to know that of the cases which have been treated here—that is drug and liquor addictions—sixty to sixty-five per cent. of the former keep well, and three out of four of the latter "make good."

The H. K. Mulford Company announces the establishment of a department of Sanitation and Epidemiology, under the executive management of Thomas W. Jackson, M. D., expert in preventive medicine, sanitation and the study and control of epidemic diseases.

The most important subjects before the American people at the present time relate to the public health. Work in this field is frequently beyond the reach of the existing health and sanitary departments of the various municipalities and smaller towns, on account of limited appropriations.

The department does not propose to enter into competition with the constituted public health authorities, Local, State or Federal, but to aid and assist these authorities in every possible way. The work is essentially one of service and education, and will be developed along these lines. The resources and equipment of the Mulford Laboratories, Chemical and Bacteriological, will be utilized, thus placing at the disposal of the New Department the entire laboratory facilities and expert services of the H. K. Mulford Company.

ILLINOIS MEDICAL JOURNAL

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Contributors will submit all copy for publication typewritten on standard size paper and double spaced. Copy not complying with this rule will be returned, if convenient.

FEBRUARY, 1916

Editorials

NEWSPAPER MEDICINE.

The medical men who have had access to a majority of the newspapers of Illinois during the past few weeks, must have been impressed by the great amount of misinformation, relative to the present so-called "grip epidemic" recently sweeping over the United States, published by these newspapers. Much of this (mis) information has been given out by doctors. Perhaps they have not been accurately quoted in most instances, but in glancing over these publications, one cannot but wish that doctors, when talking for publication, might be more careful. When a doctor talks on medical subjects, either for publication or to an individual, he is educating the public, and should be careful that his talk conforms to facts or to accredited opinions or theories.

Much advice has been given for the prevention of this malady—grip or influenza. Laboratory reports would indicate that the epidemic was not influenza at all, as few laboratory diagnoses were made of this disease. Methods of prevention have been freely discussed, but, strange to say, the one fact which seems to favor prevention—a nigh state of vitality or resistance—has almost escaped notice. Quarantine and isolation theories have been advanced. Does it not seem crude to talk such methods relative to a disease which spread all over the United States in less than forty-eight hours, and appeared in all portions of a large city on the same day? People have been advised to stay at home indoors; they have also been advised to be out of doors all the time—sleeping out or in cold rooms. Probably most of the advice would be good for some one individual, but almost any of it would prove disastrous to others not suited.

It is a difficult matter to educate the public in matters medical. It is more difficult to correct wrong theories once accepted by the public as truths. Only a few decades ago people were taught to shut out fresh air from the sick room or dwelling. It has taken years of endeavor to start a fresh-air crusade, and many of the older generations will never become enthusiastic converts. Now that people are seeing the value of fresh air, physicians who are educating the public should be wise in their methods of teaching. This will apply not only in the matter of fresh air, but also in the education of the public on all questions pertaining to the health of the community.

The purpose of the medical profession must be prevention of disease by education of the public, and erroneous theories advanced by individuals will not only discredit the profession, but also delay the era of preventive medicine.

THE HOSPITAL QUESTION

The hospital question is looming large in current medical affairs and although it has not come to an issue yet, the day is not far distant when in justice to the rank and file of the profession the whole proposition must be taken up and placed on a better and fairer basis. The general practitioner, in large cities especially, finds it impossible to secure hospital care for his patients without the necessity of giving them up to another practitioner, not infrequently an active competitor. Thus the economic side of the question is becoming acute—for patients will go to hospitals. In the majority of instances people would prefer to remain under the care of their regular physician. Provision ought to be made, therefore, whereby the original attending physician could continue in charge of a patient who from necessity or otherwise seeks hospital conveniences, and the hospital surgeon occupy a position more nearly like that of the consultant in

private practice. This would protect the interests of the original medical attendant without prejudice in any way to the patient or hospital. Unfortunately, under present conditions a patient who enters a hospital severs all relation with his original physician—unless this physician happens to be a member of the hospital staff—and even then if the patient has to go to a department of the hospital with which his doctor is not connected or at a time when he is not on duty. As a consequence, every practitioner of medicine—in New York City for instance—knows that sending a patient to a hospital means with the rarest exception that he has seen that patient for the last time in a professional capacity. No one will deny that this works a serious hardship on the medical men who do not have hospital connections, and these of course are bound to constitute the great majority. It is quite obvious that the question is too complex and has too many factors that must be considered, to admit of any full and comprehensive discussion at this time or within the confines of so brief an article as this must necessarily be. There is much to be said in extenuation at least—if not in excuse—of the present system of hospital management. But the condition is becoming intolerable to many a practitioner and unless present hospitals recognize the situation and make some provisions whereby the physicians of the community may command hospital care for their patients without relinquishing them completely, the doctors will take the matter into their own hands and organize institutions that will meet their professional needs. General practitioners are not seeking to do appendicectomies, gastro-enterostomies or major surgery generally, but there is a large amount of ordinary emergency surgery which every physician is qualified to handle, and any number of medical cases which medical men in active practice should have the opportunity of taking to a well conducted hospital, with its many obvious advantages, and there direct their treatment, without let or hindrance from any one. We have no idea of advocating surgery by the under qualified or inexperienced. The restrictions in this direction should be increased and made more rigid, not diminished. Operative surgery must be surrounded by every safeguard, and every effort enlisted to raise its efficiency. There can be no question of this. But the general practitioner should not have the legitimate field of his activities curtailed by the denial of hospital facilities. His license to practice confers upon him very definite rights and privileges and if he cannot secure these through existing agencies, he will sooner or later take steps to develop agencies through which he can.—*American Medicine, October, 1915.*

The above editorial, taken from "American Medicine," was probably suggested by conditions as seen in New York, but which are more or less common to all large cities and, perhaps to a lesser degree, to the smaller ones. The condition is in fact becoming intolerable, and as more people go to hospitals each year, just so does the rank and file of the profession lose their prestige,—not because the profession, as a whole, is incompetent, but because of the influence brought to bear upon hospital patients. The efficiency of the hospital of today is not up to its maximum just because of this condition; because of its efforts to increase the business and reputation of its chief operators or its chief clinicians.

This is not as it should be, and the question will be solved and is being solved. The solution will probably be found by the physicians owning and controlling hospitals. In some of the smaller cities physicians are forming companies and building hospitals for the accommodation of their own patients. This will solve the problem for them, as they may then control the hospital policies. While this method is more difficult of accomplishment in large cities, it still has been proved possible, and will probably eventually solve the difficulties.

At the present time there is in Chicago a large hospital owned and controlled by doctors. A stock company was formed and all of the stock sold to physicians. It has been necessary to enlarge this hospital to accommodate the patients of other doctors. The work of the physicians in this institution compares with that of the richly endowed hospitals. It has been successful financially, and not the least feature has been the amicable relations of the physicians who bring their patients to this institution. Another feature of greatest value in this arrangement is the facilities for team work among the doctors, while they may at the same time keep control over their patients.

There is now a company of doctors forming to build a large hospital in another part of the city. This hospital will be a stock company, and doctors in general practice will own the hospital and control its policies. Doctors, generally speaking, would rather not bother about the administration of hospitals, but they are being compelled to do so as a matter of self-preservation, and the sooner others do so, the sooner will the hospital question be solved.

VITAL STATISTICS IN ILLINOIS

The bright future of vital statistics in Illinois is sufficiently set forth in our Public Health sec-

tion which faithfully records the advance which will take place as our present excellent law is put in full operation.

Requested to supply a statement of the mortality statistics of the State for last year, Dr. Drake, secretary of the State Board of Health, wrote that "We will be unable to supply any mortality statistics of Illinois worthy of any consideration whatever. Under the old law less than sixty per cent. of the deaths were recorded."

The only exception to this statement applies to the "Registration Cities" which, through local ordinances require death certificates before the bodies of deceased persons can be disposed of.

In Chicago the reported deaths for 1915 were 34,730, giving a death rate of 14.19 per 1,000 population. Omitting the 812 Eastland victims would give Chicago a rate of 13.85, which equals the lowest rate ever recorded, in 1904. The principal saving was in deaths from pneumonia, which were 23 per cent. fewer than the average for ten years—1906-1915. Typhoid fever deaths declined 65 per cent. The contagious diseases decreased; scarlet fever, 85 per cent.; whooping cough, 65 per cent.; diphtheria, 16 per cent. Diarrheal disease deaths decreased 19 per cent. Nephritis deaths were nearly 15 per cent. fewer, and tuberculosis deaths declined 3.4 per cent. The only noteworthy increases were from measles, 20 per cent.; cancer, 7 per cent., and heart disease, nearly 11 per cent.

With the exception of measles, all diseases over which sanitary control has at present any marked effect show satisfactory reductions.

Of the other registration cities in the State the latest available statistics are the mortality figures just issued by the U. S. Bureau of the Census for the year 1914 as follows:

	Death Rates per 1,000 Population.		
	1914	1913	1912
Aurora	14.1	14.2	14.5
Belleville	14.4	15.4	13.1
Decatur	12.3	13.0	12.2
Evanston	11.0	10.2	11.5
Jacksonville*	28.6	25.5	23.9
Quincy	14.8	15.7	14.6
Springfield	15.6	17.6	15.8

*Contains State insane hospital.

ALIENISTS AND NEUROLOGISTS.

The Chicago Medical Society announces the fifth annual meeting of Alienists and Neurologists of the United States, to be held under the auspices of the Chicago Medical Society, June 19 to 23, 1916, at La Salle Hotel.

We wish to invite you to attend these meetings and participate by paper or take part in the discussion of the various subjects and other matters that may come before the conference. We hope to enlist your valuable assistance in a campaign of education of physicians and the public as to the causative forces of mental deficiency and will appreciate your assistance. As physicians and the public have taken great interest in these meetings the Chicago Medical Society, even though at great expense, has decided to continue these annually without expense to others.

Resolutions were passed at the meeting in 1915, requesting the governors of the various states to appoint committees to investigate the causative forces of feeble-mindedness.

Reports of these committees will be made at the meeting in 1916. The reports of the general committee will be forwarded to the governors of each state. Resolutions will be formulated by the conference that will be instructive to legislatures, to the end that reasonable laws may be passed that will in a measure at least be preventive of mental deficiency.

The governors and boards of administration or control, are taking great interest in these meetings and giving us valuable assistance to carry forward this movement. We hope also to interest the editors of the various medical journals in this movement and through them enlist the help of physicians. If a campaign of education were made against the causative forces of mental defectiveness as there is against tuberculosis, a wonderful amount of good would result. This subject should interest us, first, from a humanitarian standpoint, second, from an economic standpoint. The judges of our courts are acquainting themselves with mental diseases; they give us the information that a large per cent. of crime is committed by mental defectives and a large percentage of the prisoners in our penal institutions are also defectives and should not have been confined to prisons of this kind, but sent to farm colonies or other reformatory institutions with proper environment. In

our state asylums, there are many cases of insanity, which if they had been diagnosed early, could have been cured. This is especially the case as regards dementia praecox and lues. The state would not have been burdened with the immense expense of their long confinement and their families would have been relieved of the humiliation of their commitment.

There has been no branch of medicine so neglected as the study of mental diseases and psychology.

There should be a great reform in this respect within the near future.

W. T. MEFFORD,
Secretary of Conference,
2159 Madison street.

WM. O. KROHN, Chairman,
29 East Madison street.

TO THE COUNTY SECRETARIES.

The following resolutions were unanimously adopted by the Madison County Medical Society at its January meeting and they are hereby printed and sent to you with the wish and the hope that you will bring them to the attention of your county society at its next regular meeting and to have them adopted:

"WHEREAS: The State Board of Health has made announcement in the December number of the Illinois Medical Journal of its intention to present to the next legislature an amendment to the Medical Practice Act, that will enable all reputable, regularly licensed physicians to enjoy reciprocity privileges, now therefore be it

"*Resolved*, By the Madison County Medical Society, in regular session assembled, that it heartily congratulates the State Board of Health on this most welcome proposed amendment, and be it further

Resolved, That the secretary of the society be and he hereby is instructed to forward a copy of this resolution to the State Board of Health, and also to each legislator in Madison county, with instructions to vote for the said proposed amendment."

As will be seen by the wording, the State Board of Health will make an attempt at the next session of the legislature to have the Medical Practice Act so amended as to restore to the diploma of the old physician some of the value that it originally had.

At the annual meeting of the Southern Illinois Medical Society, held in November, Dr. C. St. Clair Drake, secretary of the State Board of Health, read a paper, an extract of which is hereby given.

"Under the prevailing provisions of the law the young man fresh from medical school and utterly void of the practical experience which makes the big, well rounded physician, may be licensed in other states through reciprocity, while the older physician, perhaps the young man's preceptor or teacher, is accorded no such privilege. There is a disposition in this day of rapid progress to attribute all virtue and knowledge to the younger generation and the tendency to relegate the older men to the side lines before their time. I cannot feel that the man who is licensed prior to 1899 is less competent, less qualified or less worthy of reciprocity with other states, than the graduates of more recent year. Under the existing state of affairs, reciprocity is denied approximately 75 per cent of the medical profession of Illinois and accorded to but 25 per cent made up of the younger generation.

After giving this subject serious consideration the Illinois State Board of Health has drafted an amendment to the Medical Practice Act, which if adopted, will extend to all legally qualified, reputable practitioners in the state the right to license by reciprocity in those states with which Illinois may establish such an agreement."

This subject has been agitated all over the state for many years and we in this county have spoken in no uncertain tones. Our fellow member, Dr. S. T. Robinson of Edwardsville, many years ago read a paper before the State Society, entitled, "Our Degraded Diploma," which abounded in logical arguments against existing conditions. When the older men received their diplomas they were good in every state in the Union, but little by little their rights have been taken away until now these diplomas are good only in Illinois. If you are qualified to practice medicine in Illinois, are you not qualified to practice in Missouri? Have you become dangerous to the public health because you have crossed the state line?

And now, Brother Secretary, we ask you to assist us in the movement, by bringing these resolutions to the attention of your medical society for consideration and adoption.

A copy of this bulletin has been sent to every county secretary in the state of Illinois, according to a list contained in the last number of the State Journal. If you are no longer the secretary of your society, if your successor has been elected, we ask you to send this bulletin to the present secretary, so that it may be properly brought to the attention of the medical profession in your county.

Public Health

ILLINOIS SHOWS HEALTH PROGRESS.

RESUMES POSITION AMONG STATES PROGRESSIVE IN HEALTH PROTECTION.

NEW LAWS FOR GOOD OF THE PEOPLE.

The year 1915 stands out in the history of the Illinois State Board of Health as the most important year since the creation of the Board in 1877. In times past Illinois was properly re-

garded as one of the foremost states in sanitary and public health administrations. It cannot be said that the state has stepped backward, but, to a certain extent, it has marked time while other states, taking advantage of the tremendous scientific progress of recent years, have gone ahead rapidly. Illinois consequently has appeared to lag behind.

Within the past year, however, Illinois has resumed its old-time place in the forefront in public health work. This was made possible by the passage by the Forty-ninth General Assembly of a large number of bills affecting public health and social conditions and broadening the powers and the scope of the State Board of Health.

Some of these laws were absolutely basic in character and were essential to any material progress in sanitary lines. The passage of many of them had been sought in past years without success. Practically all of the more important measures were recommended for passage by Governor Edward F. Dunne, in his message to the General Assembly.

Perhaps the most important step taken in public health administration in over thirty years was the establishment of a modern and accurate system of the registration of births and deaths under the provision of the new law. For a number of years Illinois has stood almost alone among the larger states as being unrecognized in its vital statistics by the United States Bureau of the Census. The new method of birth and death registration, which has just been placed in operation, not only gives the State, for the first time, a reliable foundation for its public health work, but it removes a definite stigma which Illinois has borne among her sister states.

Another important measure earnestly endorsed by Governor Dunne has been the establishment of a Bureau of Sanitary Engineering, charged with the supervision of water supplies, sewage and waste disposal and other technical sanitary matters having to do with disease prevention. The State Board of Health has long been handicapped in having no department capable of handling this essential part of this work. The Bureau of Sanitary Engineering, working closely in touch with the State Epidemiologist, which is likewise a newly created office, will place the prevention of communicable disease in expert and efficient hands, and these agencies will be further strengthened by the recent division of the State into sanitary districts each with its full time medical health officer, residing in his own district and working under the supervision of the Board.

The district health officers will not only have charge of the supervision of contagious diseases and insanitary conditions in their districts, but they will be advisers of municipalities and will bring about frequent conferences of local health officers for the purpose of elevating the standards of public health protection in the various towns and cities.

The laboratory diagnosis of communicable disease which has been carried on for a number of years from the central laboratory at Springfield, has been made more generally available to the physicians of the State by the establishment of two branches, one in Chicago, for the northern part of the State, and another at Mount Vernon for the southern part of the state. A branch laboratory at Champaign will probably be established in the near future.

Quite as valuable as its diagnostic laboratory service has been the free distribution of preventive and curative serums and vaccines. For some time the State has distributed diphtheria antitoxin, and more recently vaccine for the prevention of typhoid fever, and during the past year smallpox vaccine and packages of nitrate of silver for the prevention of blindness of children have been added to the list. In addition to the ordinary demand for such agents the State Board of Health, during 1915, furnished sufficient typhoid vaccine to immunize all of the members of the Illinois National Guard and the inmates of a number of state institutions.

Several years ago a law was passed authorizing the State Board of Health to assume public health control in municipalities whenever communicable disease spread beyond the control of local authorities. It was felt, however, that this measure was one for employment only as a matter of last resort and that acting upon it would reflect prejudicially upon the communities involved. During the past year, however, the State Board of Health has taken this action in a purely friendly way and at the instance and co-operation of cities affected, with the result that several municipalities have been saved thou-

sands of dollars and normal business and social conditions have been promptly restored. With all of its manifold activities in directly dealing with disease, the State Board of Health has insisted that a greater amount of public good will ultimately come from systematic and widespread education in public health matters than through any other method that can be employed. Pursuing this policy, the Board has created an excellent mechanical public health exhibit which has attracted a great deal of attention in all sections of the State, where it has been shown in connection with county fairs, meetings of state medical and social organizations, and in various other public exhibitions. In addition to this method of bringing public health graphically to the attention of the people, the Board has published new and thoroughly modern circulars of information on the cause and prevention of practically all of the communicable diseases and these have been distributed widespread throughout the State.

The distribution of educational literature has been simplified through the establishment of about 350 agencies scattered throughout the State, with at least one in each county. These agencies are utilized for the distribution of curative vaccines and containers for transmitting specimens to the laboratories, and also for the distribution of all forms of public health educational material.

To meet the need of popular education, the Bulletin of the State Board of Health, formerly published as a technical journal for the use of physicians, has been made thoroughly popular in character, has been rechristened as the *Illinois Health News,* is profusely illustrated, and is sent free to all persons throughout the State who may desire to receive it.

This almost revolutionary change in the activities of the State Board of Health has excited comment not only of the newspapers and other publications in Illinois, but has met with approval in journals of national circulation and on the part of sanitary and public health officers of other states. In the words of the *Journal of the American Medical Association,* receiving the medical approval of the nation, "Fortunately for the people of the state, a new era in public health activity seems to have dawned. Illinois is to be congratulated on her progress, which all friends of public health will hope is only a promise of better things in the future."

FREE SCHICK TEST OUTFITS FURNISHED BY STATE BOARD OF HEALTH

The State Board of Health will soon be prepared to furnish outfits containing the Schick Test to be used in the determination of the susceptibility or immunity of individuals to diphtheria. Within a very short period of time these outfits may be obtained at any of the three laboratories of the Board.

The first outfits obtained by the Board are of large size and can be furnished only to institutions or schools or to health officers or private physicians under special conditions when there have been a number of exposures. The containers now available contain enough diphtheria toxin for ten or twenty tests and it will possibly be some time before the Board will be prepared to supply packages containing single tests.

This test, which was first described by Schick of Vienna in 1913, indicates clearly those persons having specific immunity to diphtheria and who, consequently, do not require the administration of anti-toxin as a preventive after exposure.

The test consists of the injection of one-fiftieth of a mininial lethal dose of diphtheria toxin for a 250-gram guinea pig into the skin and observing the character of the skin reaction at the point of injection twenty-four to forty-eight hours later. According to Kolmer and Moshage, a certain percentage of persons will present a small area of redness and infiltration at the site of injection within twenty-four hours and such false reactions have frequently been misinterpreted for true toxin reactions. Hence, it is much better to read the reactions after forty-eight hours rather than after twenty-four hours.

The test is so delicate that it will indicate an immunity so slight that it will not protect against the disease. This slight reaction, of course, is to be ignored. The importance of the test is indicated when it is known that 80 per cent. of new born, 50 to 60 per cent. of children, and 90 per cent. of adults have sufficient natural immunity to protect them against diphtheria.

Illinois is the first state to place free Schick test outfits at the disposal of physicians and in-

stitutions. These outfits will be ready for distribution by February 20.

CONTAGIOUS DISEASE SITUATION IN ILLINOIS.

Summary of Reports to State Board.

Reports of communicable diseases to the State Board of Health for the month of January indicate a marked falling off in the prevalence of diphtheria, an improvement in the smallpox situation, and quite a notable increase in scarlet fever cases.

Peoria and Rockford lead in prevalence of scarlet fever, 63 and 35 cases, respectively; East St. Louis and Springfield continue to have their troubles with diphtheria, but to a lesser extent than in December; Decatur and Clinton are claiming the "honors" for greatest number of cases of smallpox.

Following is a summary of the situation at the centers of population, which are chiefly affected:

Amboy: Smallpox rapidly subsiding, from 17 cases in November and 10 in December to 2 in January.

Batavia: Diphtheria present in December; no new cases reported in January.

Belleville: Diphtheria subsiding, from 29 cases in November and 12 in December to 6 in January.

Carlinville: Diphtheria outbreak in January, 5 cases. Scarlet fever increased from 2 cases in December to 6 in January.

Centralia: Diphtheria increased from 22 cases in November and 10 cases in December to 3 in January.

Clinton: Smallpox outbreak; 13 cases in January.

Danville: Smallpox, 8 new cases in January, 5 fewer than in December. Diphtheria stationary, 5 cases. Scarlet fever increase from 5 cases in December to 7 in January.

Decatur: Smallpox prevalent, 18 cases in December, 14 in January. Diphtheria stationary, 5 cases in each of last two months. Scarlet fever decreased from 24 in December to 7 in January.

Dugoin: Diphtheria epidemic here for several months now entirely subsided, but 10 cases reported in surrounding rural districts.

East St. Louis: Diphtheria epidemic subsiding from 96 cases in December to 49 in January.

Evanston: Fourteen cases of scarlet fever in January.

Foster Township, Marion County: Smallpox epidemic controlled, 33 cases in November, 31 in December and 2 in January.

Riverton: Smallpox situation improving in city, spreading in surrounding territory.

Peoria: Scarlet fever, prevalent for several months, continues to increase, from 53 cases in December to 63 cases in January. Also extend to suburban towns, viz., Averyville 11 cases in January; Bartonville 4 cases, and Peoria Heights 1 case.

Griggsville: Scarlet fever shows increase, from 4 in December to 9 in January. Chickenpox also appeared in January, 16 cases.

Joliet: Scarlet fever stationary, 12 cases in December, same number in January.

Litchfield: January, 10 cases of scarlet fever.

La Salle: Scarlet fever 11 cases, diphtheria 5.

Peru: Scarlet fever 8 cases.

La Grange: Scarlet fever increased from 3 cases in December to 7 in January.

Lacon: Smallpox situation improved; 18 cases in December, 4 in January.

Mt. Carmel: Diphtheria and scarlet fever epidemic previous two months abated in January, but 5 new cases of diphtheria and 6 of scarlet fever in latter month.

Oak Park: Scarlet fever increased from 4 cases in December to 8 in January.

Pecatonica: Little improvement in scarlet fever situation.

Rockford: Scarlet fever prevalent, 26 cases in December, 35 in January.

Rock Island: Smallpox increased from 7 cases in December to 9 new cases in January.

Springfield: Smallpox, scarlet fever, and diphtheria decreasing in prevalence; 25 new cases of smallpox in January against 69 in December; 30 new cases of diphtheria in January, 65 in December; 10 cases scarlet fever in January, 13 in December.

Fremont: Outbreak of scarlet fever, 6 cases in January.

Wilmington: Scarlet fever increased, from 5 cases in December to 8 in January.

FUMIGATION OF SCHOOLS USELESS.

State Board of Health Recommends Substitute.

TELLS HOW TO REDUCE SCHOOL ROOM INFECTIONS.

Acting in accordance with the best of modern thought on the subject of disinfection, the Illinois State Board of Health announces abandonment of the long time requirement of fumigation (aerial disinfection) of school rooms following an outbreak of contagious diseases, and in lieu thereof recommends that infested schools shall hereafter be treated as follows: Careful removal of dust from walls and ledges by use of vacuum cleaner or moistened cloth; very thorough scrubbing of floors, employing an efficient disinfecting solution; very thorough washing of all other woodwork, especial attention being given to desks and seats occupied by and in the immediate vicinity of infected pupils; long con-

tinued airing of room and freest possible admission of sunlight. As an additional precaution in the presence of such diseases as scarlet fever, diphtheria, smallpox or infectious meningitis, the floor, woodwork, desks and seats may be sprayed with an approved disinfectant.

Books, pencils, pens and other similar articles handled by the infected child should be destroyed by burning prior to disinfection of the room.

Before a child, who has been ill with a contagious disease is permitted to return to school, the local health officer and the responsible officer of the school must satisfy themselves: (1) That the child has thoroughly recovered and period of infectiousness has passed. (2) That there are no other communicable illnesses in the family. (3) That the premises have been properly disinfected. (4) That the child has been given an efficient disinfecting bath. (5) That the child's clothes have been very thoroughly disinfected by boiling or by fumigation with an approved disinfectant in a properly sealed small room, preferably a clothes closet. (6) That opportunity for reinfection of clothing subsequent to disinfection was avoided.

The State Board of Health further recommends that school authorities shall make it a hard and fast rule that every window in a school building shall be widely opened following dismissal of classes and that they be kept open for so long a period as is practically never less than one hour. It also is recommended that school buildings be freely aired each morning before assembling of classes and during the recess period.

Attention is directed to the fact that the temperature of a school room never should exceed 68° Fahr. With a proper degree of moisture in the air, this temperature will be found most comfortable and will make for greater mental alertness and be of distinct advantage to the physical well being of the occupants of the room.

If practicable, school room windows should be kept open during occupancy of the room, even in winter. During the cold weather the open window should be screened with a cheesecloth screen. This will admit sufficient pure air, will break a draught and will keep the room at a temperature more conducive to health. Under such conditions there would be vastly less infectious illness chargeable to the school room.

"Everyone must eat his peck of dirt," is an aphorism of a by-gone day. To act upon it may pile many bushels of dirt upon your untimely coffin.

The pneumonia season is at hand. To escape it, don't hibernate—ventilate. And don't dissipate.

Chew your food until you can taste it. Thorough mastication is both a pleasing and important part of right eating.

Hygiene is Humanity's Hope.

Hygiene aims to make growth more perfect; life more vigorous; decay less rapid; death more remote.

Defective sanitation means defective civilization.

Where the sun does not go, the doctor does. (An old Italian proverb.)

A day in the park may save weeks in the hospital.

The dropping leaves of the plants in winter behind closed windows is a good sermon on bad air.

Sunshine and fresh air are conspirators for good health.

Cracking one's funny bone never causes one to laugh in one's sleeve.

It takes more nerve for a woman to open a telegram than it does for a man to open a jackpot.

Oh, yes, there is a vast difference between the savage and the civilized man, but it is never apparent to their wives until after breakfast.

Learn to Hold Thy Tongue. Five words cost Zecharias forty weeks silence.

In your conduct and conversation never swerve from your honest convictions.

When we ask God to direct our footsteps we are to move our feet.

Ah! what a tangled web we weave when first we practice to deceive.

You never lower yourself when you stoop to raise another.

The way to make the best of any situation is to make it better.

Gently to hear, kindly to judge.

Auto Sparks and Kicks

MY MOTOR GIRL

My motor girl, my motor girl, how she doth set my heart awhirl as, with a rush, she madly hikes along the overcrowded pikes! Her silvery laughter is the horn she sounds pedestrians to warn that she is coming at full speed and that they'd better give her heed.

The wheels that whirl her on her way are made of human hearts, they say. She runs along right gracefully, no matter what the traffic be; and every heart along the road takes gladly on the loving load, and with a whiz and lively whir obeys the slightest whim of her.

Her clutch is light, but oh how firm! Away from it no wight could squirm, however hard he'd strain or scrape in the mad effort to escape. Her gear is high, and ne'er a cop along the line would dare to stop her in the pace that she doth choose on lanes and streets and avenues.

Her motor lights are deeply blue as are the heavens' fairest hue, and danger flash to all who dare to brave their self-reliant stare. Her hood, ah, what a thing of grace, of feathers made and filmy lace, from whose dim depths the lights flash forth like the Aurora of the north!

Ah, motor girl—would thou wert mine! A day with thee would be divine—a life with thee could only be one mad joy ride of ecstasy! But sad my fate—and hence my groan—she never can be quite my own, for though my heart doth call her queen she's bust me buying gasoline!

—Horace Dodd Gastit, in *Harper's Weekly*.

HOW TO SPONGE BODY

Begin washing the car body by dipping the sponge well into the water, in order to pick up as much water as it will hold, and then begin at the top of the panels and dash the water obliquely and gently against the panels to loosen accumulations and cause them to drop off.

Another way is to squeeze the water out of the sponge at the top of the panels and thereby with the pressure of water carry away the mud or dirt. These are methods for the car that is washed immediately after use.

RATTLING DOORS.

"The doors of the body often develop a rattle which is difficult to trace and still more difficult to overcome. The installation of a couple of small rubber bumpers will often overcome this trouble. A piece of rubber from a lead pencil will quite often answer the purpose," says Manager Herron of the Autocape Top company.

TAR REMOVED BY SALT BUTTER.

When the car body becomes spotted with road tar a good substance to use for removing the spots is salt butter. This should be applied as soon as possible, for should the tar begin to harden, refinishing of the body may be found necessary.

HOW TO FROST GLASS.

Lamp frosting may be done very cheaply and conveniently by dipping the bulbs in a solution of 2 ounces sandarac, ½ ounce mastic, 22 ounces ether and 16 ounces benzine. The mastic and the sandarac should be ground together and mixed with the solution of ether and benzine. The frosting is accomplished by dipping the lamps into the solution.

GAUGE PRESSURE THAT MAY MISLEAD

The pressure indicated by a gauge on an air pump while the pump is working usually is higher than the pressure in the tire, due to the loss through friction in the restricted air passages and the valves. The most accurate way is to get a pressure reading direct from the tire itself, thus eliminating possible causes of error.

OXYGEN TO REMOVE CARBON

Peroxide of hydrogen squirted into the intake manifold through a small hole near where it forks, and while the engine is running, will be carried into the cylinders and the excess of oxygen will quickly burn out the carbon deposits.—*Motor.*

SOAP IS SPEEDOMETER GEAR LUBRICANT.

Ordinary soap is used by some repairmen to lubricate speedometer driving gears. It acts as a lubricant and quiets them.

Society Proceedings

ADAMS COUNTY

The members of the Adams County Medical Society began the New Year right. On Monday evening, January 10, instead of the regular meeting, a banquet was given at the Hotel Quincy to the retiring officers. The attendance was not so large as was expected. On account of sickness, bad weather and miserable condition of the roads, many were kept away. However, those present did justice to the elaborate seven-course dinner that was served.

At the conclusion of the menu Dr. H. P. Beirne, the toastmaster, introduced the first speaker on the program, Dr. R. J. Christie, who responded to the toast "Some Medical Phrases." The doctor spoke especially about those men who have been prominent in Quincy's medical history. He also referred to the enthusiastic spirit which permeated the Clinical Surgeons' Congress at the meeting held in Boston during the past fall; to the statement made at the Western Surgeons' Congress, that carcinoma of the breast is decreasing, and benign tumors are on the increase. The next speaker was Dr. Melinda Germann, who responded to the toast "Women in Medicine." Her paper was very well received and gave us a good idea of what women have done and are doing in the field of medicine. She was followed by the president, Dr. Dan Stine, who read extracts from a medical book published in 1797. Many of the theories advanced at that time are in use at the present day.

Dr. G. E. Whitlock, the retiring president, was to have talked on "History of Medicine," but was unable to be present on account of illness. The secretary was ordered to send him a letter of sympathy and regret at his inability to be with us on this occasion.

After a short business session, the pleasant evening came to a close. Each one expressed the wish that this be made an annual banquet, to be held instead of January meeting, and we trust that the second Monday in January, 1917, will be thus observed.

ELIZABETH B. BALL,
Secretary.

COOK COUNTY

CHICAGO MEDICAL SOCIETY

JOINT MEETING OF THE CHICAGO MEDICAL AND UROLOGICAL SOCIETIES

Regular Meeting, January 5, 1916

SYMPOSIUM OF GONORRHEA

"Bacteriology," C. C. Warden; "Modern Vaccine Treatment," Louis E. Schmidt; "Complement Fixation Test," V. D. Lespinasse; "Complications of Gonorrhea," Robert H. Herbst; "Vulvo-Vaginitis in Children," Isaac A. Abt; "Gonorrhea and Prostitution," L. W. Bremerman; "Gonorrhea and Marriage," Irvin S. Koll.

Regular Meeting, January 12, 1916

1. "Surgical Problems Considered from the Standpoint of Morbidity," Edward H. Ochsner. Discussion, Lawrence Ryan.
2. "The Prevailing Epidemic of So-Called 'La Grippe:'" a. Etiology, F. H. Harms. b. Bacteriology, Adolph Gehrmann. c. Pathology, David J. Davis. d. Vaccine treatment, Joseph F. Biehn. e. Management of complications, Joseph C. Beck. Discussion: Charles Spencer Williamson, Robert H. Babcock and H. G. Ohls.

Regular Meeting, January 19, 1916

1. "Hydrotherapy in America," illustrated by moving pictures, W. G. Russell, Hotel Chamberlain, Fortress Monroe, Va.
2. "Hydrotherapy in Cardio-Vascular Disease," J. H. Kellogg, Battle Creek Sanitarium, Battle Creek, Mich.

Regular Meeting, January 26, 1916

1. "A Case of Beriberi Successfully Treated with Three Doses of a Vitamine-Containing Extract," Bayard Holmes, Sr., and Julius Retinger, Ph. D. Discussion, Maxmilian Herzog.
2. "Diagnosis, Prognosis and Treatment in Nephritis," Martin Fischer, University of Cincinnati, Cincinnati, Ohio. Discussion: Wilbur Post, S. R. Slaymaker and Ralph Webster.
3. "Present Status of the Operation of Decortication of the Kidney," Filipp Kreissl.

CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY.

(Abstract.)

Regular meeting, held May 24, 1915, with the president, Dr. George W. Root, in the chair.

DEMONSTRATION OF FRONTAL SINUS CASES OPERATED INTRANASALLY: CASES OF LATERAL SINUS THROMBOSIS.

Dr. R. H. Good wished to demonstrate one point especially regarding frontal sinusitis, namely, that cases with pus breaking through the bony walls, either on the forehead or in the orbit, heretofore having been considered as cases that should be operated extranasally, will get well when operated intranasally, and demonstrated this point to the members by the exhibition of several patients. The first patient came to the speaker about two years ago with an acute frontal sinusitis, with swelling just above the eyebrow near the median line. Everything in the line of medical treatment was tried, without relief. The middle turbinate was removed, which seemed beneficial at the time. His experience with removal of the middle turbinate in cases of acute frontal sinusitis, however, has not been very satisfactory. He tried frequent suction, after cocaine and adrenalin sprays, but the patient got gradually worse, and was incapacitated. Pus had broken through the anterior sinus wall. Operation was performed intranasally, and drainage established, with immediate relief of pain and disappearance of the swelling.

In Case 2 there was no question about there being pus underneath the periosteum, with marked swelling of upper lid. The intranasal operation was performed, and the pain disappeared altogether.

In the third case the pus had also broken through the bony wall of the sinus. When first seen, the left eye was pushed partly out of the socket. The tissues above the eye were so swollen that it was impossible to open the eyelids. The patient was confined to bed. As this is not usually the case, it made the speaker think of a very serious condition, and immediate operation was advised. He did the intranasal operation, and got very nice drainage. The patient did not get well, however, but continued to have subnormal temperatures, occasional vomiting, inability to concentrate the mind, and could not feed himself. The diagnosis was made of extradural abscess. Operation showed perforation from the sinus into the orbit, but the posterior wall was absolutely solid. The speaker then opened up the posterior wall, removed at least a dram of pus. The point he wished to bring out was that the pus did not go through the posterior wall of the sinus, but came into the orbit, and then went back between the periosteum and bony orbit, through the posterior orbit, and then came forward under the dura. That was the only way in which he could explain it being in the extradural space. Had it not been for the extradural abscess, this patient would have been cured by the intranasal operation.

The speaker was very proud of the fourth patient, who had had a frontal sinusitis for seven months, with a fistula opening just above the inner canthus of the eye. In twenty-four hours after operation she had absolutely no discharge from the fistula, and at the present time it is still closed—a year and a half after operation, so that a sinus draining from the frontal sinus is not a contraindication to the intranasal operation.

Case 5. This patient also developed an abscess just above the inner canthus, which broke open. An intranasal operation was performed with some difficulty, which was followed by a good result.

Case 6 was a lateral sinus case. The patient developed an acute rhinitis, and was obliged to leave his work on account of chills. Later developed an acute otitis media in both ears. Was sick for four days before rupture of the membranes. Treated for about a week with the usual treatment of a general practitioner, but grew worse continually. Tongue coated; appetite poor; temperature slightly elevated at times. Dr. Good was called at the end of a week. He could not elicit any tenderness over either mastoid; there was no tenderness along the sinus. Discharge most profuse from left side. The patient was put in the hospital, and the temperature taken every hour—a point which he finds very valuable in making a diagnosis of lateral sinus thrombosis. This case was operated after the positive diagnosis of lateral sinus thrombosis was made two days after entering hospital, and recovery followed. In operating these cases Dr. Good has noticed that in every case where he has simply ligated the internal jugular vein it ruptures in three to five days after it is tied. He believes it is wise to separate the vein and sew the upper end into the wound, so that it can be irrigated through and through. This patient had a leucocytosis of 18,000; the polys were 85 per cent. Autogenous vaccines were given throughout the entire course of treatment in the hospital.

Dr. Joseph C. Beck asked what organism, to which Dr. Good replied the staphylococcus aureus.

The seventh case was also a lateral sinus thrombosis, and in this case you could see the mastoid region bulging. Was treated in a dispensary for five or six weeks, but not operated, because there was no discharge from the ear. No disturbance with hearing. The infection did not go through the jugular bulb because the sinus was perforated in the mastoid region. In addition, there was an extradural abscess found on operation. When the mastoid was opened the pus came out of the cranial cavity with pulsations. In this case there was no perceptible systemic infection, and the patient recovered nicely, and has perfect hearing.

Case 8. This patient was a nurse, who had an acute tonsillitis. Four days later developed an acute otitis media, with tenderness over mastoid. Up to this time had been under the care of a general surgeon. When Dr. Good was called he did a paracentesis, and there followed a profuse discharge from the ear—about a cupful in two hours' time. Four days later it was necessary to perform a mastoid operation. The lateral sinus was found uncovered, the bone necrosed over the sinus over a small area, but only a complete simple mastoid was performed. Within a week she had distinct symptoms of lateral sinus thrombosis. The lateral sinus was operated on, the internal jugular ligated. There was no pneumonia at any time, and yet she had multiple abscesses all over the body, about fifty. Patient recovered in six weeks after last operation.

GROWTH IN THE LEFT CHOANA.

Dr. Norval H. Pierce showed a patient who had complained two months ago of nasal stoppage on the left side. There was no pain of any consequence. The left choana, on examination, was found deformed by a growth which apparently sprang from the immediate vicinity of the posterior end of the inferior turbinated body. When first seen there was no ulceration, but an induration in the region approximately close to the inferior and middle turbinated body, which could be very easily seen to travel upwards toward the upper portion of the Eustachian tube. The second time he was seen, some days later, there was a distinct increase in this infiltration, and had a slough on its upper portion. The turbinated bodies were then so amalgamated in the left choana that he could hardly distinguish between the posterior end of the septum and the middle and inferior turbinated bodies. The growth apparently was very rapid. A piece about the size of a finger-nail was

snared off for pathological examination, and showed nothing but granulation tissue. Toward the circumference of these pieces of tissue he found something that was rather suspicious of epithelial growth. The pathologist was not sure whether it was epithelium or endothelium, but could see nothing that he could positively state to be malignant in its character. The man had no history of syphilis, but in order to insure the absence of this disease he was put on antisyphilitic treatment, with absolutely no effect on the growth. On examination of the post-nasal space on the evening of the meeting, when the case was presented, this infiltration was found to have spread rapidly over the posterior wall of the posterior pharyngeal space as a large ulceration, with heaped-up edges. This is the second case Dr. Pierce has seen of this kind, and they all go about the same way.

Dr. Pierce then showed x-rays of the case of a child who had been referred to the clinic by the school officials for the removal of tonsils and adenoids. On examination, the tonsils were found to be healthy, and there were no adenoids. However, the child could not breathe properly through the nose. There was considerable swelling and discharge of pus on the right side. A foreign body could not be seen by anterior or posterior rhinoscopy, but the x-ray showed a large safety-pin somewhere in the posterior portion of the nasal cavity.

CASE OF NASAL DEFORMITY FROM SYPHILIS, WITH SUGGESTIONS AS TO REMEDYING THE DEFECT.

Dr. Pierce said the deformity had resulted from a syphilitic process which had healed up. In this case the Wassermann was negative. The idea, however, was to improve the man's appearance. Dr. Pierce's plan was to take the middle finger of the left hand, split it up and sew the split finger into the cavity. This is not the usual technic, but he thought it might be successful. He would like to have the members make any suggestions regarding this case.

The next case Dr. Pierce showed was one of frontal ethmoidal disease, operated on by the Killian method, with accentuation of an important point, namely, that in these cases the whole temporal region is usually very much swollen. Such was present in this case. The patient was shaved very thoroughly before the speaker saw her on the table, and therefore could not tell where the eyebrow was. Since operation, the eyebrow has sprung out very beautifully, over an inch above the incision. This displacement was the result of the great swelling present. The point is very important that in these enormous swellings it must be that the attachment of the orbicularis and the occipitalis has become entirely eaten away from the bone; the muscle contracts and throws the soft parts upwards. He has never seen this fact brought out, however, and exhibited the case because of its interest.

Dr. Pierce's next case was one of acute frontal abscess, with violent pain, which continued for many weeks. The patient was sick for five weeks. In operating, he went in through the ethmoid, up into the frontals. The pain was greatly relieved by this intranasal operation.

DISCUSSION.

Dr. J. Holinger asked if it was an especially deep frontal sinus, as shown by the x-ray, to which Dr. Pierce replied that he did not think it was especially deep and he did not think there was anything special about the x-ray other than it showed that the sinus was diseased.

CASE OF PARALYSIS OF VOCAL CORDS OF DOUBTFUL ORIGIN, PROBABLY LUES.

Dr. Charles H. Long presented this case. The interesting point is its cause, whether tubercular or luetic. The x-ray plates were exhibited, which showed the external laryngeal on each side, demonstrating the difference. The patient is fifty-five years old, and consulted the speaker last January on account of the loss of his voice. Otherwise in good health. In 1907 he was treated for a condition that seemed to be tuberculosis of the lungs by Dr. Walter Barnes. At this time there were also epileptiform fits. When he came under Dr. Long's care he said these fits extended over eighteen months. The hemorrhages were not like ordinary lung hemorrhages. They came on after doing some strenuous work, and were only three or four in number. Dr. Barnes told Dr. Long over the telephone that the tuberculin test and examination of the sputum had both been negative, and that the patient recovered under antisyphilitic treatment. Dr. Barnes was of the opinion that it was a case of lues. The man remained well until 1912, when he had an attack of sciatica, which laid him up for four weeks. One day last November, when he got up, he could not talk, which condition continued until he consulted Dr. Long. A tuberculin test at that time was negative. He was put on antisyphilitic treatment, and a Wassermann was made, which showed 25 per cent positive. He was given salvarsan. In this case it is necessary to consider the possibility of lung syphilis. The diagnosis in this case is not by any means easy. We know a positive Wassermann may be found in a tuberculous individual, without evidence of syphilis being present. We know that syphilis is one of the predisposing factors in tuberculosis. This patient may have both syphilis and tuberculosis. Physical examination of the left apex posteriorly shows a mildly active lung lesion—undoubtedly tubercular. No evidence of active trouble in right lung; no râles present, which could be accounted for by the fibroid condition of the affected portion of the right lung.

Syphilis of the lung is comparatively rare. This man's condition is much more suggestive of tuberculosis. He has had no temperature; pulse normal; during last winter lost about fifteen pounds in weight; no cough; no night sweats; none of the symptoms of tuberculosis. He has had salvarsan, and is now taking forty grains, t. i. d., of K. I. He has had inunctions, and says that he is gaining about a pound a week. This diagnosis made by Dr. Long was syphilis, partly on account of the treatment by Dr. Barnes and

the improvement that has taken place under antisyphilitic treatment. The voice is improving.

CASE OF LARYNGEAL TUBERCULOSIS.

Dr. Long's second patient was a man, 39 years of age, who has had sore throat almost all his life—up to about four years ago. He was free from it until last summer, when it again became sore. He consulted a physician, who said the tonsils should be removed. This operation was performed successfully in November, and about three or four weeks after that he commenced being hoarse, which condition has persisted ever since, although fluctuating somewhat. Otherwise is perfectly well. No indication of lung trouble. Father died at 36 with some lung trouble. Was sick for three or four months, and patient thought it was pneumonia. Patient has had an ulceration of the mouth, several ulcers of the tongue, and ulcers of the pharynx.

These were examined microscopically, and the report of the pathologist was necrosis with cell formation. Bacteriological examination showed pneumococcus and streptococcus formations. Epithelial cells found. Wassermann test negative. Tuberculin test positive. On the strength of the positive tuberculin test, the laboratory report, and there being no improvement from treatment, as well as the voice still remaining hoarse, and the recent discovery of the lymphatic nodes, one on each side, Dr. Long was led to the belief that the condition was one of tuberculosis.

CASE OF DOUBLE CEREBELLAR ABSCESS, WITH RECOVERY FOLLOWING OPERATION.

Dr. Burton Haseltine was inclined to believe that there has been no report in the literature of a bilateral cerebellar abscess with recovery. In the case presented the abscess followed an acute infection of the right middle ear, in a boy, eighteen years old, who enjoyed good health previous to the time of getting a grippal cold, which was accompanied by considerable purulent rhinitis, rather quickly followed by an acute suppurative inflammation of the right middle ear. This ear complication was untreated. There was spontaneous rupture of the drum, with very free purulent discharge for about three weeks. There was considerable swelling of the external ear, in front, upward and back of the auricle, suggesting a mastoid condition. Five or six weeks after the beginning of the ear trouble, when he began to have vertigo and difficulty with walking, he was first seen by a physician. There was also some vomiting, and the usual symptoms suggestive of cerebellar trouble. Dr. Haseltine first saw the boy on January 26th. He was unable to walk, and had the appearance of sepsis, combined with a subnormal temperature of about two degrees. Pupils widely dilated; equal on both sides. No reaction to light. Moderate amount of optic neuritis—equal on both sides. Mental condition perfectly normal, except that there was some delay. Coordination about the same on both sides. Could not stand without falling, and at that time fell to the right. Had had several attacks of spontaneous vomiting. Nystagmus on looking either to right or left side—rather marked, but not on looking straight ahead at this time. Dr. Haseltine made a clinical diagnosis of abscess of the right cerebellum, and advised that the patient be brought to Chicago. When he arrived here he was very much better. Dr. Grinker was called in consultation, and he made a very extensive examination. Blood examination showed only 9,000 white count; red cells about normal; lymphocytosis both absolute and relative to a mild degree. Temperature came up to normal. Kept in hospital seven days under observation. Tuberculin test negative. Temperature about normal. No particular change in symptoms. On seventh day he developed labyrinth symptoms for the first time, with distinct rotary nystagmus. Right labyrinth did not respond to caloric test. Hearing apparently normal in right ear. Normal reaction to caloric test on left side. Mastoid showed absolutely no symptoms, except a slight difference in transillumination, the right being a little darker. There was no pain. Middle ear normal in appearance. Drumhead had ruptured spontaneously. Discharge had ceased. When labyrinth symptoms developed, a mastoid operation was performed, the dura exposed, and mastoid cleaned out. The cells were dark, but not broken down. Culture showed the staphylococcus aureus. The labyrinth was exposed, but the upper nodules were not opened. Forty-eight hours later the temperature was normal; rotary nystagmus had diminished; pupil dilatation decidedly less; and all the symptoms better. Six or seven days following this the cerebellar symptoms returned, and on the eighth day the cerebellum was opened. This patient had some bilateral symptoms. The right sphenoidal bone was explored, and nothing found. An opening over the right cerebellum released a large abscess. Examination showed a practically pure culture of the yellow staphylococcus. This operation was followed by immediate improvement, and after seven weeks, with the usual drainage, the boy was allowed to leave the hospital, although there was exposed, but the upper nodules were not opened. temperature suddenly went up to 104°, and the symptoms returned. He was taken back to the hospital, the canal dilated, and a probe inserted to the bottom. At the depth of four and one-quarter inches there was some bad-looking tissue, and a small amount of pus. An x-ray picture was then taken with the instrument in the wound, and Dr. Haseltine was surprised to find the end of the probe was over in the opposite hemisphere. The left-sided abscess was then drained through the right sided opening by means of silver tubes, which were gradually cut off as the cavity became smaller. At the last rubber tubes were used for drainage, and then gauze. (NOTE—As we go to press the patient is entirely well, the wound has closed and he is able to go about his usual duties.)

DISCUSSION.

Dr. Julius Grinker said that on his first examination of the patient he found evidences of right-sided cerebellar disease. As there was a history of infection preceding the

developing of symptoms, earache and purulent rhinitis, with discharge, and some mastoid involvement, combined with a history of subnormal temperature and leucocytosis, he did not think there was any difficulty in diagnosing the case as cerebellar abscess. The boy was apathetic, slow in speech, thought and locomotion. He had bilateral cerebellar ataxia, more marked on right side; also nystagmus and double optic neuritis—not well marked, but sufficiently so to be recognized as such. Instead of the classical slow pulse there was rather a small and rapid pulse. Temperature subnormal rather than elevated. The speaker made the diagnosis of cerebellar abscess independently of Dr. Haseltine. It was questionable from the symptoms whether immediate operation on the cerebellum was justified without previous exploration of the intervening territory. The history of mastoid trouble could not be disregarded and he agreed with Dr. Haseltine that it would be best to explore the mastoid first. Then came the question as to the advisability of going into the cerebellum after the mastoid operation. Dr. Haseltine mentioned the fact that there were symptoms which did not indicate exactly a unilateral abscess, namely, exaggerated tendon reflexes on the right side, which did not exactly fit in the picture of left-sided cerebellar disease. Also, there was a speech disturbance suggestive of a mild type of aphasia. It is well known that aphasia is not produced by right-sided trouble. These symptoms made the speaker hesitate in advising immediate cerebellum operation, and he also wished to ascertain the absence of a meiningitis serosa interna, which occasionally occurs in connection with pachymeningitis, following mastoid disease, usually in the vicinity of a pus depot. Lumbar puncture was made and the boy was somewhat relieved after the withdrawal of a moderate amount of fluid, which, though under great pressure, on examination proved to be negative. The symptoms continued, however, and Dr. Grinker advised exploration of the temporo-sphenoid lobe adjoining the territory of the right mastoid and in the absence of a depot of infection proceed to the cerebellum. This was undertaken. The temporo-sphenoidal lobe was found free from pus and the cerebellum entered at once and a large right-sided abscess discovered. At this time Dr. Grinker had no idea that there was also a left-sided abscess, and it was not until Dr. Haseltine introduced the probe into the cavity and had the x-ray taken that this bilateral condition was discovered. The result, the speaker thought, was brilliant. He did not remember having ever seen a bilateral cerebellar abscess, certainly not one that recovered.

Another interesting feature in this case was the frontal headache, which pointed to the frontal lobe, but is rarely found in cerebellar disease, abscess or tumor. The explanation is that the fronto-pontine cerebellar tract has its origin in the frontal lobe.

He thought the surgical work in the case was cleverly executed by Dr. Haseltine and neither he nor Dr. Haseltine regretted that they had not proceeded faster.

CASE OF RECOVERY FROM MARKED HYDRORRHEA NASALIS OF HYSTERICAL ORIGIN.

Dr. Joseph C. Beck presented a patient to the Society for the second time. This young lady when first shown to the members had a marked hydrorrhea nasalis, and the diagnosis of a hysterical condition was made by Dr. Grinker and Dr. Beck independently. Some of the members thought it a more serious condition. Nevertheless, the patient was sent home shortly after being at the meeting, and has entirely recovered since that time. Previous to that she had had about fifteen operations on the sinuses and throat. She had been promised a course in the training school for nurses if she recevored, which study she is at present pursuing.

NECROSIS OF NOSE FOLLOWING REMOVAL OF TEAR DUCT.

Dr. Beck's second case was that of a man who had had a tear duct removed on account of a swelling on the right side of the face. Following operation the nose and right side of the face became very much swollen and necrosis developed on the side of the nose. The diagnosis of lues was made. Wassermann faintly plus. Was treated vigorously with a number of neosalvarsan injections, large doses of iodides and mercury, with absolutely no result. At one time it was thought the condition might be tuberculous, and he received three treatments of deep x-ray therapy by the Coolidge tube, following which he was given salvarsan intravenously instead of neosalvarsan. The nose cleared up after this, and the speaker thought this proved that salvarsan and not neosalvarsan was the specific in this case. But that was only temporary. Then the speaker consulted Dr. Ormsby. There was absolutely no history of lues, and Dr. Ormsby decided that it was a case of chronic septic infection of the nose, and should receive vaccines and x-ray treatments. As he had received vaccines before, without effect, he was given eight deep x-ray treatments with the Coolidge tube, and the improvement was marvelous. The case was interesting in that the whole trouble arose from a chronic dacryocystitis.

CASE OF LABYRINTH DISEASE: OPERATION: RECOVERY.

The third case exhibited by Dr. Beck was a young man who gave a history of having had measles as a child, and chronic bilateral suppurative otitis media ten years before, which was operated. He was then considered deaf and was a pupil in Miss MacGowan's school. Dr. Beck had operated him, doing a bilateral radical mastoid, and had then lost track of him, until his return a few weeks ago with severe headache on the right side. Suppuration from the region of the promontory was discovered, and a labyrinth operation performed. Both ears were negative to all tests as to a functioning labyrinth. He was absolutely deaf. He has fair speech, and is a splendid lip reader. In cleaning out the labyrinth Dr. Beck used only the bur. He took out the entire labyrinth, saving the facial bony canal, with the happy result that the ear is dry, there is no facial paralysis, and the headaches are entirely subsiding.

TRIFACIAL NEURALGIA.

Dr. Beck showed a man who had had a radical frontal sinus operation, but complains of very marked pain. He had been promised relief of the trifacial neuralgis by injections of the Gasserian ganglion. The condition was on one side, and not classical of the condition, but the speaker felt that as all other things had been done except injection of the nerves, this might afford relief. He had already treated three

patients by such injections, and he felt that the treatment certainly offers a splendid opportunity for relief of such severe pain as these cases present.

DISCUSSION ON DR. PIERCE'S CASES.

Dr. J. Holinger referred to a plastic operation of one wing of the nose in reference to both Dr. Pierce's and Dr. Beck's cases. The tissues of the face are very elastic. To cover the defect in his case Dr. Holinger made two slightly divergent incisions from the end of the defect backwards over the cheek and loosened a large flap between the incisions; he then stitched the bleeding base of the flap to the edge of the bony aperture of the nose. That gave sufficient loose skin tissue to cover the whole defect with a loose flap, which was well supplied with blood. There was absolutely no tension on the back of the nose, because the tension was at the edge of the pyriform aperture. The flap fell into place automatically. The cosmetic result was very good.

Dr. Joseph C. Beck had seen Dr. Pierce's case and it looked to him like a sarcomatous condition of the nose. It might be an epithelioma or endothelioma, although these conditions certainly differ, at least microscopically. Regarding the case in which Dr. Pierce was going to do a plastic and also his own case, he did not know of anything better than the operation Dr. Pierce suggested doing. He thought the loose flap would be a poor procedure. One of the necessary things is the preservation of the nasal side of the orbit and any operation which would loosen up tissues around the orbit would defeat the purpose.

Dr. Pierce, in closing, said he had very little faith in flaps derived from the side of the face bridging over such a large defect as that present in the case he had hsown. The stitches pull out and the defect is just about as large after the attempt as before.

DISCUSSION ON DR. HASELTINE'S CASE.

Dr. Norval H. Pierce asked whether the labyrinth had been tested out since operation, especially the static apparatus.

Dr. Alva Sowers, speaking for Dr. Haseltine, said that the labyrinth had been tested with the caloric and rotary tests about three weeks ago and found to be still active. Another point he wished to mention was that no anesthetic was used during any of the operations. The patient received one-sixth grain of morphine preliminary to the first operation.

Dr. Pierce thought it was important to know whether the labyrinth responded to the caloric test before the abscess was drained. He had understood Dr. Haseltine to say the labyrinth was normal, both for hearing and the caloric test.

Dr. Sowers replied that the static labyrinth was negative; the acoustic labyrinth was normal. He could hear perfectly previous to operation. There seems to have been no change in the labyrinth except the rotary nystagmus.

Dr. Pierce asked how the auditory apparatus was tested, to which Dr. Sowers replied that they used a stethoscope, pinching off first one side and then the other, and whispering through it, so that there was no chance of malingering.

Dr. Grinker said he thought this a very splendid test.

Dr. Pierce asked if the noise apparatus was used, to which Dr. Sowers replied that it was not.

Dr. Pierce said he could hardly think the man could hear so well with such a destruction.

Dr. George W. Boot said he would like to know the origin of the abscess. Such abscesses are usually situated close to the temporal bone. This one was quite a distance from it. Was it by direct extension from the mastoid or was it a metastatic process?

Dr. Grinker, replying to Dr. Boot's question, thought it was a metastasis, as all the intervening brain territory was found free from disease.

Dr. Beck asked if Dr. Grinker made a test of pronation and supination or the diadokokinesis.

Dr. Grinker said he did, but this was inconclusive for localization.

DISCUSSION ON DR. BECK'S CASES.

Dr. Julius Grinker wanted to speak about the case of trifacial neuralgia shown by Dr. Beck. This man had been under the speaker's care and he had put him down as a psychasthenic, with the habitual or psychic sort of pain. He feared the results of injection of the Gasserian would prove disappointing. The speaker is very loath to resort to this method unless all peripheral injections have been unsuccessful, for the reason that there is always the real danger of causing corneal ulceration when the Gasserian ganglion injection is successful. Regarding the patient who had had hydrorrhea nasalis of hysterical origin he remembered the case very well. He thought the remarks made in her presence, when she was first presented, had done a great deal for the girl by virtue of the psycho-therapeutic treatment unconsciously practiced. Time and again he has seen patients made worse with each consultation, because of the poison that was instilled into their minds as to the existence of organic disease. When we know that patients have no organic disease we should tell them so.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

Meeting of Oct. 18, 1915, Continued.

DISCUSSION OF DR. WORTHINGTON'S CASE.

DISCUSSION.

Dr. Tydings had had no experience with guaiacol, but that there had been marked improvement in one case under his observation of pyorrhea alveolaris with episcleritis by the use of a proprietary preparation known as alcrestoipecae.

Dr. Worthington had examined the patient's teeth and had referred her to her dentist to ascertain if she had any signs of pyorrhea, but he had reported back that he found nothing of that nature.

Dr. Murray referred to the case of a man taking large doses of digitalis who developed purple vision. His vision became normal upon the cessation of the administration of digitalis, but upon resuming the digitalis the vision again became purple. Yellow vision caused by the use of santonin is not uncommon, however.

Dr. Tydings reported the case of a young man, 20 years of age, whose father had died at the age of 48 with kidney trouble, the mother living and in good health. Two brothers and one sister are living. There is no disease history. On the twenty-eighth of July this patient came to the speaker's clinic blind in the left eye. There was slight perception, but no vision. Examination showed neuro-retinitis, choroiditis, two patches and what seemed to be a sarcomatous growth in the superior temporal quadrant of the left eye. He was advised to enucleate. The speaker said he would have recommended enucleation if the growth had stood alone. There is considerable doubt as to the etiology. The urinary findings were negative; there was no appearance of inherited lues; the Wassermann test was negative. There was only a feeble response to the tuberculin test, there being a rise of one and a half degrees of temperature under the test. The nasal septum was deflected to the left. The left sphenoid was not healthy. The walls were denuded and the bone was exposed. The septum was straightened and an opening was made up to the sphenoidal sinus, and the patient was put on active specific medication and tuberculin injections. There has been good progress; there is now 20.100 vision in this eye, and the other is perfectly normal.

He believed this condition to be of tubercular origin, although he was not sure.

Dr. W. A. Fisher, discussing Dr. Tyding's case, had seen this same patient about a month ago and that the condition then was no more interesting than now, because there has been such marked improvement in the condition of the eye since he first saw him.

The condition tonight looks much like many cases of choroiditis. There is a pigmented choroidal spot just below the fovea centralis above the fovea and a little toward the temporal side, there is an atrophic spot in the choroid. There is no swelling of the spot, but when he saw him with Dr. Tydings August 2, 1915, this white spot was ten

times larger than it is tonight and elevated from the normal part of the fundus about four diopters. It presented at that time a picture of a sarcoma of the choroid and reminded him of a picture he had for teaching that is copied from Frost's Atlas. He did not have any vision at that time and he believed it to be a sarcoma.

Dr. H. S. Gradle said that in this case at one time there was probably some interference with the circulation of this area, with subretinal or subchoroidal hemorrhages and a collection of serum. An autolytic process involving the retina and the choroid probably followed. Now the condition is one of atrophic retina, with the sclera showing through. There is still some swelling of the surrounding area. We cannot tell whether the central area is swollen, but elsewhere there is edema. The condition now is what might be designated as a hole in the retina and choroid, due to autolysis from the subretinal collection of serum.

Dr. Michael Goldenburg said that in view of so much destruction of the retina and choroid and so little pigment epithelium or choroidal pigment being present, one would be led to think of what von Michel said, that where there is great destruction of tissue and with little or no pigmentation and a few changes in the vessel walls, the condition can be safely diagnosed as tubercular. In view of the fact that Dr. Tyding's injection of tuberculin was followed by a rise of one and a half degrees, this would seem to be good grounds for regarding the condition as tubercular.

A DOUBLE WEST OPERATION.

Dr. John A. Pratt, of Aurora: While in Seattle, last July, I demonstrated the West operation on the patient for a number of physicians. The patient's brother, who is a physician, operated on the other side the following day. The patient received four or five treatments, and then was allowed to return to his home on the farm about one hundred and fifty miles distant.

The results of the operation were seemingly good, so good that three weeks ago the patient was sent to Dr. Fisher, of Chicago, for a cataract operation.

Dr. Fisher found on microscopical examination that pus was present, and hearing from the patient that I had performed the West operation on him sent him out to Aurora to have him cleaned up. After three weeks' treatment the eyes seem clean and the tears are carried off, but upon microscopical examination pus is still present in the secretions of the eyes. The question is whether to send this patient back to have the sac trouble cleaned up, if possible, or destroy the sac and perform the operation for cataract. The patient has only one eye and is thirty-five years old.

PAUL GUILFORD, Secretary.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

A regular meeting was held November 15, 1915, with the President, Dr. Richard J. Tivnen, in the Chair.

TREATMENT OF OBSTRUCTION OF THE LACHRYMAL PASSAGES, INCLUDING DESTRUCTION OF THE SAC WITH TRICHLORACETIC ACID.

Dr. Harold Gifford, Omaha, Neb., first referred to his previous contribution on this subject, then described a number of points in lachrymal technic. Formerly, in destroying the sac, he generally put the patient to sleep and used the Paquelin cautery to destroy the lining, but he had some fear that if he used the cautery vigorously enough to be sure he destroyed all the sac he might cause a little necrosis of the bone and have future trouble.

Many years ago the sac was destroyed with chlorid of zinc placed on a piece of cotton and stuffed down into the sac, waiting for nature to do the rest. Seemingly good results were obtained by that method. However, it was inaccurate and painful, so that he had now adopted the method of destroying the sac with trichloracetic acid.

DISCUSSION.

Dr H. W. Woodruff said he had used the method of Dr. Gifford and thought he was safe in recommending it in cases of acute exacerbations of chronic dacryocystitis in which the surrounding tissues were greatly inflamed and in which it was almost impossible to extirpate the sac. Sometimes one could not tell where the sac began or ended. In such cases he thought the Gifford operation was ideal, because it was simple and effective. He was not, however, quite prepared to give up the extirpation of the sac in cases of chronic purulent dacryocystitis in which it was very essential to get rid of the pus sac previous to doing an operation for cataract, and he thought he would still adhere to the method of extirpating the sac.

As to the treatment of dacryocystitis in infants, he agreed with Dr. Gifford, except that he had never adopted the external incision in probing the nasal duct by that method. He had had a number of cases that were relieved and cured by simply syringing the sac and duct. Putting the child under the influence of ethyl chlorid and inserting the point of a syringe in the punctum and with one squirt the fluid in the syringe seems to go with a gush through into the nose and that was the end of the dacryocystitis.

Dr. J. Sheldon Clark, Freeport, Ill., expressed himself as much interested in seeing Dr. Gifford perform the operation on a tear sac earlier in the day at the clinic held at the Eye and Ear Infirmary. While the technic was simple, yet the operation should be done with care.

It was his opinion that the technic as given would be suitable where one had for his object the destruction of the sac. But in this as in the Meller excision procedure one does not have a functionating ear apparatus left.

The Toti operation was mentioned by the essayist and the point made that the opening made from the outside into the nose was prone to close off, due to the deposit of fibrin around the bony opening. Dr. Clark was of the opinion that the intranasal route still offers the best way of attacking the floor of the lachrymal fossa in all cases where one desires a functionating tear apparatus following the operation, and that this is the best way of securing drainage. By the intranasal route one can secure a good opening with clean-cut margins of muco-periosteum, and when this is done and the after-treatment persisted in for a time, then a closure does not take place.

Like Dr. Woodruff, in children and especially in young babies, he had been able to cure cases of blennorrhea with a simple syringing of the lachrymal passages.

Dr. J. A. Pratt of Aurora thought that oculists should tend towards preservation in these cases as much as possible and he thought that was the trend of Dr. Gifford's remarks.

In reference to anesthesia in passing the probe, since he had been doing the West operation he had packed the lateral wall of the nose before passing the probe. This would deaden the bone and relieve the patient of much pain. With the West operation he had had some successes and some failures and it seemed to him that a great deal depended upon the patients themselves. In cases of phlegmon the intranasal operations gave direct drainage into the nose. Free and good drainage tended possibly towards more rapid healing, so that one could do more conservative operations.

Dr. William A. Mann asked Dr. Gifford whether in these simple cases of obstruction he had ever used the galvanic current. Personally the speaker found it a great advantage in passing the probe to connect it with a negative pole and applying from ten to fifteen milliamperes. The probe would pass more easily than it otherwise would.

Dr. Oliver Tydings had tried the various methods, but was heartily in favor of using the probe where there was a tear sac that one could pass it through. He had had some experience along the line mentioned by Dr. Mann. In very many of the cases as long as the stricture was fibrous tissue and not bone, electrolysis would work very well. One had practically the same condition to contend with that he had in a urethral stricture. He had bulb pointed bougies made for this purpose and he had used them, but unfortunately in many of the cases we had bone to contend with rather than fibrous tissue.

Dr. Oscar Dodd was glad he had seen Dr. Gifford perform the operation he had described and the only question in his mind was to follow up the cases and know what the results were. Inasmuch as Dr. Gifford had had a large experience in this line of work, he expressed the hope that he (Dr. Gifford) would speak further on the subject.

Dr. Gifford, in closing the discussion, said he had never tried electrolysis in connection with probing. When he first got the idea of using electrolysis he was afraid to try it lest he might get more cicatricial contraction. Electrolysis meant a certain amount of decomposition of tissue, but whether the ultimate result would tend more towards the formation of stricture than one would otherwise have he did not know.

With regard to the intranasal operation one could combine the idea he had suggested of shoving through the membrane of the sac into the nose, with the intranasal operation. All one had to do after making the intranasal opening was to make an external incision through both walls of the sac and shove gauze through into the nose. The scar produced would be imperceptible. He believed some method of covering up the edge of the bone would lead to more permanent results in all operations for making a new hole in the nose.

He had never had the experience related by Dr. Woodruff of curing these cases with a single syringing of the sac.

As to the after-treatment of this method of destroying the sac, it did not amount to anything. All one had to do was to pack the cavity with some aristol, merely to keep the cavity from filling up with tears, and keep a little zinc oxid ointment on the opening in the skin. The granulating cavity left by the trichloracetic, unless it were filled with powder or the sides kept pressed together, might tend to fill with pus. In one case of mucocele he had that thing happen. The mucocele was as large as a pigeon's egg. The woman returned two weeks after the acid had been used with the pocket dilated with pus. He let out the pus and pushed the walls together with a wad of cotton on the outside, kept a bandage on to hold the edges and the thing closed up.

SOME OBSERVATIONS ON THE OPERATION OF IRIDOTASIS FOR GLAUCOMA.

Dr. Dunbar Roy, of Atlanta, Georgia, stated that the only advantage in the iridotasis operation was the avoidance of a possible hemorrhage to the anterior chamber which might occur in either of the two other operations. In the simple non-inflammatory forms of glaucoma the use of cocain as an anesthestic was all sufficient.

After reporting five cases in which he had done this operation he said there was no universally ideal operation for glaucoma. Each ophthalmologist had his own special technic which he considered the best for this class of cases. He believed that most men were agreed that nothing short of some well recognized operative procedure should be attempted in those cases of acute fulminating glaucoma. Personally he had discarded the use of myotics except as an adjuvant, for he believed in immediate operation in every case of well recognized acute and chronic glaucoma.

There were good arguments favoring the use of this operation. 1. Its simplicity and ease of technic. 2. The immediate result in relieving all the symptoms was just as permanent as that obtained by any other operation. 3. Freedom from irritation in the healing of the eye.

DISCUSSION.

Dr. Casey A. Wood said all were interested in the Borthen operation, as it touched a probable cure for chronic simple glaucoma. Almost any operation would cure a case of glaucoma in which acute attacks occur, but in cases of slowly progressive, simple glaucoma we have a much more difficult problem to deal with and it seemed to him that the operation described by the essayist was the simplest and perhaps the most satisfactory method of dealing with this formidable disease.

He had one practical suggestion to make in connection with the operation itself, based on his own experience.

Owing to the screen of conjunctival flap it is not easy to pass an iridectomy forceps into the anterior chamber through the small opening called for by Borthen and required for success in this operation. Fortunately, this part of the procedure is not necessary if one, in withdrawing the keratome, press upon the posterior lip of the wound. A gush of aqueous follows pressure against the posterior surface adjoining the scleral wound and with the flow of fluid the iris margin and the intermediate iridic zone are carried out through the opening. After this has been done one finds the iris in the position desired. In carrying out Borthen's ideas it is now necessary to grasp the iris and pull it up still farther (which constitutes the required "stretching" of the iris) and well outside the incision.

Dr. N. Remmen called attention to Borthen's article which appeared about four years ago in which he (Borthen) described his first operation, which was an accident. He was going to do an iridectomy for glaucoma in a child. He made an opening with the Graefe knife and suddenly there was considerable expulsion of the iris and vitreous and he thought the whole eye was lost. He bandaged the eye and sent the patient home. The patient was not seen again for about two months, at the end of which time the patient returned and to the great surprise of Borthen the eye was almost perfect.

Dr. Remmen said the reason why oculists did not pay much attention to the operation at the time was that Holth had performed iridencleisis and it was thought to be about the same thing. In connection with the operation as described by Dr. Roy there were points of undoubted value. In the first place, pulling or stretching the iris opened up the spaces of Fontana. There was also possibly some filtration. The stretching of the iris may keep the space of Fontana open permanently in the night time as well as in daytime. Tension was higher at night and there was no other operation that would do this as well as this one would. It might infrequently happen that no hypertension in a glaucoma patient could be found in the daytime because of daylight contracting the pupil, but if the patient was put in a dark room for two or three hours and the pupil allowed to dilate we would be able to find increased tension.

As to the use of the tonometer he thought it was of great importance. For example, he had a patient about a year ago who was blind in one eye. He looked at him hurriedly and thought it was a case of atrophy. The patient had been treated by an able physician for atrophy and no operation was done. The sight began to fail in the other eye. The speaker glanced into that eye and saw slight paleness of the disk. Vision was still nearly normal and he began to think of the cause of the atrophy. Meanwhile he thought

he would take the tension and to his surprise found it was nearly fifty. With palpation it seemed practically normal. Myotics did not reduce the tension. He did trephining and got a very good result. He thought trephining would still be considered a good operation. He recalled four cases of glaucoma in which everything else had been tried but trephining and this operation gave a very happy result.

Dr. W. H. Peck expressed himself as being greatly impressed with the good features of iridotasis because he had been following the results of the Elliott operation and had found a number of cases of late infection, but there was a striking absence of infection in Borthen's cases.

In one of the operations performed by Dr. Roy at the infirmary the iris retracted into the anterior chamber and it was claimed by Borthen that by using atropin this could almost certainly be avoided. Dr. Roy had to draw the iris out again. Dr. Peck could not see any objection to using atropin and, judging from Borthen's results, it would be better to use it. Another good feature was the continued reduction of tension. According to Borthen, palpation with the fingers was practically valueless; that he had practically discarded it and now used the tonometer. Borthen did Holth's operation for a number of years. Cases of injury in which there was incarceration of the iris he noticed were followed by permanent reduction of the tension, and this led him to try stretching of the iris and Dr. Peck believed this operation was going to become popular from almost every point of view. Very few operations had been recorded in the literature in which the results had been so uniformly successful.

He was impressed with the absence of infection in the cases reported by Dr. Casey Wood in his modification of the Zorab operation and tends to confirm the greater safety of iridotasis over trephining. Several of his professional friends had told him that they had practically given up trephining on account of the many cases of late infection. In cases in which there was atrophy of the iris it was practically impossible to do iridotasis.

Another point of importance was to make a very small incision, otherwise the iris was almost certain to retract into the anterior chamber.

Dr. Harold Gifford, Omaha, Neb., asked Dr. Roy whether there was a bleb after iridotasis the same as after trephining.

Dr. Roy replied there was a fairly good bleb.

Dr. Gifford, referring to the cause of detachment of the choroid after trephining, said it was much more frequent than after any operation unless it be the Lagrange. One did not appreciate how often this occurred unless he followed Elliott's advice and used atropin regularly after the operation. In his early cases he was afraid to use atropin after trephining. After he began to use atropin systematically and looked especially for detachment of the choroid he found he had a number of such cases. In one case he had a double detachment of the choroid, one sticking out into the pupil from each side. Detachment of the choroid was an unpleasant looking thing, and although ultimate recovery was said to be invariable, he did not think the man's sight was as good as it would have been if he had not had it. Some attributed the frequency of these detachments after trephining to the sudden loss of fluid; others to a traumatic connection between the anterior chamber and the perichoroidal space. Both theories were wrong; otherwise it would be more common after cataract operations. The true explanation is to be found in the long continued low tension after the trephining. The occurrence of the bleb after iridotasis showed that the reduction of pressure was due, not to stretching the iris nor to freeing Fontana's spaces (which it evidently cannot do), but to the formation of a fistula.

Dr. H. W. Woodruff spoke of a man who came to the infirmary last April with the history of having had an iridectomy performed on his right eye about eight years ago. This was without result, as there was an entire loss of vision, so that he had no perception to light. When he came he had practically no vision in the remaining eye. The patient could see the movement of the hand in the lower outer field, but could not count fingers at all. Operation was suggested. The man objected to it, stating that he had had such an unfavorable experience with the other eye that he did not want to have any other operation. Eserin was used and, much to the astonishment of Dr. Woodruff, vision gradually improved until a month ago the patient had 20/30 vision in that eye. The man was able to get about and Dr. Woodruff said he was certainly thankful he did not operate upon that eye.

(To be continued)

JEFFERSON COUNTY

The Jefferson County Medical Society met at the home of Dr. and Mrs. W. H. Gilmore, Mt. Vernon, Ill., Thursday evening, Jan. 27, 1916. Twenty-two physicians, two dentists, and one other guest were present.

The secretary's report for the past year was read and placed on file. It shows that during the past year this society has had seven meetings at which the following subjects have been discussed:

The Kidney in Disease and in Health.

Eugenics and the Physician.

The Manufacture of Serums and the Immune Therapy.

Tubercular laryngitis.

Pyorrhoea: Its Causes and Treatment.

The Harrison Anti-Narcotic Law and Interpretation of Same.

Vesico-Vaginal Fistula—Report of Three Cases.

The X-Ray in the Diagnosis of Disease of the Stomach.

Contagious Diseases and Methods of Prevention.

Reminiscences of An English Army Surgeon.

The smallest number of physicians present at any meeting was 19.

The greatest number of physicians present at any meeting was 31.

The average number of physicians in attendance was 23 4-7.

The membership in this county is 27.

This being the time for the election of officers for the new year the following were elected: President, Todd P. Ward; vice-president, R. R. Smith; secretary and treasurer, Andy Hall; censor, O. A. Suttle; delegate, Andy Hall; alternate, E. E. Edmundson.

The scientific program for the evening was a "Symposium on Poisons." The subject was discussed by Drs. O. A. Suttle, J. W. Hamilton, W. H. Gilmore, J. T. Whitlock, C. W. Hall, H. M. Swift, M. D. Henderson, E. E. Edmundson, Todd P. Ward, Thomas B. Williamson and Andy Hall.

Following the scientific program a sumptuous buffet lunch was served. This was followed by an hour spent in social games.

Our society is in a healthy condition and has had the best attendance the past year in its history.

ANDY HALL, Secretary.

LAKE COUNTY

Lake County Medical Society met in regular session at Ft. Sheridan on Thursday evening, Jan. 13, 1916, as guests of the medical officers of the post.

After a trip of inspection through the hospital we were taken to the mess room and served dinner army style, after which we listened to the following very interesting program:

Paper on "Treatment of Delayed Union of Fracture," by Capt. Von Shrader, which was well illus-

trated by a number of radiographic views and presentation of some cases he now has under treatment.

Paper, "Surgical Diseases of Trachea and Larynx," by Dr. E. F. Gavin of Waukegan.

Captain Porter of the Post told us of the Medical reserve corps of the United States and urged those of us interested to make application for appointment in same.

We then listened to a most interesting talk by Colonel Tate on the duties of army life, what we as American citizens owe to our country. He also praised the self-sacrifices and patriotism of our profession at all times when duty called. Major Tompkins related a number of incidents and anecdotes of his own experience that occurred while he was in the Indian service on our frontier years ago.

The resolution petitioning the Secretary of War that adequate provision in reorganization of the army be made for a sufficient number of medical officers as the surgeon-general of the army may deem necessary was unanimously adopted.

On account of stormy weather our attendance was small, only twelve of our members being present, but those of us who did attend felt well repaid, for it was indeed a glorious good time and the evening passed only too quickly. A vote of thanks was tendered our hosts for the excellent manner in which they had entertained us, and from the various expressions heard after the meeting I am sure it has been many months since this society has had a meeting that would compare with this one. Our next meeting will be held in Waukegan some time in February, subject to be a "Symposium on Tuberculosis."

C. S. AMBROSE,
Secretary.

LIVINGSTON COUNTY

The Livingston County Medical Society held its semi-annual meeting at Pontiac, November 1, and it was one of the best meetings in its history. Twenty-three members were present and enjoyed an excellent program, after which dinner was served.

MADISON COUNTY

The first meeting of the new year of the Madison County Medical Society was held in Granite City on January 7, 1916, with our new president, Dr. R. D. Luster of Granite City, in the chair. In spite of bad weather conditions twenty-two doctors were present, and the meeting was full of marked interest. Dr. Bransford Lewis, of St. Louis, presented a general review of "Genito-Urinary Surgery" and illustrated his lecture with specially prepared slides. His effort was highly appreciated and proved to be very instructive. Dr. O. C. Church, of Glen Carbon, who lately came to this county from Bond county, was admitted to membership. Bills for our tuberculosis work in the county during the past month amounting to $30.59 were presented, audited and ordered paid. Dr. R. S. Barnsback, treasurer of the Madison County Anti-tuberculosis Society, reported that he had deposited in the Bank of Edwardsville $500 to the credit of the above-mentioned society, which on motion was approved. He was also instructed to secure a community nurse for this county for a period of at least four months of 1916 to work under the direction of this society.

The following resolutions offered by Dr. F. W. Braner, of Troy, were unanimously adopted:

WHEREAS: The State Board of Health has made announcement in the December number of the ILLINOIS MEDICAL JOURNAL of its intention to present to the next legislature an amendment to the Medical Practice Act, to enable all reputable, regularly licensed physicians to enjoy reciprocity privileges, now therefor, be it

Resolved: By the Madison County Medical Society, in regular session assembled, that it heartily congratulates the State Board of Health on this most welcome proposed amendment, and be it further

Resolved: That the secretary of the society be and is hereby instructed to forward a copy of this resolution to the State Board of Health, and also to each legislator in Madison county, with instructions to vote for the said proposed amendment.

On motion of Dr. J. B. Hastings the society will meet in Edwardsville on the first Friday in February, 1916.

E. W. FIEGENBAUM,
Secretary.

ST. CLAIR COUNTY

The yearly meeting of the St. Clair County Medical Society was held at the city hall of Belleville, Ill., Jan. 6, 1916, with President Campbell in the chair and 13 members present.

Upon motion of Dr. Lillie the offices of secretary and treasurer were combined by electing the same member to both offices.

The following members were elected:

President, Dr. B. H. Portuondo; vice-president, Dr. J. H. Fulgham; secretary and treasurer, Dr. A. E. Hansing; board of censors, Drs. E. P. Raab, C. P. Renner, J. W. Rendleman; program committee, Drs. C. W. Lillie, Florence L. Evans, J. W. Rendleman, E. P. Raab and A. E. Hansing, delegate to State Society. Dr. R. L. Campbell; alternative, Dr. G. C. Otrich.

Resolutions in memory of Dr. A. M. Scheel, who died a few weeks ago, were adopted. Several bills were allowed and ordered paid.

Dr. C. W. Lillie read a very interesting paper on "Cancer," which was fully discussed by all members present.

Upon motion the society adjourned to meet again at East St. Louis the first Thursday in February.

A. E. HANSING, Secretary.

WINNEBAGO COUNTY

The Winnebago County Medical Society held its annual banquet at Nelson Hotel, Rockford, on January 11, 1916, with Dr. E. W. Goembel, vice president, in the chair and twenty-three members present.

Following the banquet the society was called to order and minutes of last meeting read and approved, followed by the secretary-treasurer's report for 1915.

Drs. W. P. Earngey and H. R. Sullivan, both of Rockford, were voted in as members of the society. The following program was rendered:

Dr. Fitch gave a talk on "Tuberculosis and the Rockford Tuberculosis Sanitarium."

Dr. Lichty spoke on "The Municipal Tuberculosis Sanitarium and What It May Achieve."

Dr. Pattison was called upon to make a few remarks on the local tuberculosis sanitarium.

The speakers of the evening were given a rising vote of thanks by the society for their able and instructive remarks.

The society instructed the president to appoint a committee of three to confer with the members of the city council as to the possibility of furthering an ordinance that would compel more sanitary conditions in buildings already erected, and also compel all modern health regulations to be considered in the erection and construction of new buildings.

The society extended a vote of thanks to the Nelson Hotel Company for all courtesies shown them the past year.

The annual election was then held and the following officers elected:

Dr. D. B. Penniman, president; Dr. C. A. Walker, vice president; Dr. C. M. Ranseen, secretary-treasurer; Dr. E. E. Ochsner, delegate; Dr. G. A. Dagnault, alternate delegate; Dr. T. F. Kinley, censor; Dr. Daniel Lichty, advisor to State Medico-Legal Committee. The meeting then adjourned.

DR. C. M. RANSEEN,
Secretary-Treasurer.

Personals

Dr. T. A. Smurr of Ottawa, recently suffered a Colles' fracture.

Dr. Henrietta M. Farquharson, Chicago, was struck by a wagon and severely bruised, recently.

Dr. Edward H. Weld, of Rockford, has joined the staff of St. Mary's hospital at Rochester, Minn.

Dr. William J. Riley, Jr., has been appointed an assistant physician on the staff of the Elgin State Hospital.

Dr. J. F. Courtney of Lockport, escaped serious injuries when his auto was struck by an electric car recently.

Dr. F. J. Norbury has been appointed chief consulting neurologist of the Wabash Railroad Hospital Association.

Dr. Victor A. Bles of the staff of the Elgin State Hospital, who has been seriously ill, is reported to be improving.

Dr. Coleman G. Buford delivered an address before the Galesburg Medical Society, January 4, on "The Goiter Question."

It is reported that Dr. E. A. Garrett of Peoria, will be appointed commissioner of health to succeed the late Dr. Edward Hasson.

Dr. W. B. Caldwell of Monticello, who had a leg amputated recently for gangrene, is reported to be recovering in spite of his 76 years.

Dr. Arthur D. Black has accepted an invitation of the University of California to give a course of lectures during January in that institution.

Dr. George N. Lucas, formerly of the staff of the Elgin State Hospital, has accepted a position on the staff of the Wilgus Sanatorium, Rockford.

Dr. William A. Evans, who was operated on for disease of the gallbladder, January 4, is reported to be making satisfactory progress toward recovery.

Dr. Dean D. Lewis gave an illustrated lecture on "Principles of the Transplantation of Tissue" in the amphitheater of the Cincinnati General Hospital, January 5.

Dr. E. Louise Abbott has been transferred from the staff of the Elgin State Hospital to the position of assistant physician at the Lincoln State school and colony.

Dr. J. D. Camerer, of Kinmundy, reports the loss of his office and contents by fire January 12, representing a cash loss of $3,600, partly insured, and a collection of curios that cannot be replaced.

Dr. William J. Uppendahl, Peoria, who has been attached to the British Hospital Service in Europe for six months, now writes that he will remain in the war zone for a second six months.

Dr. Charles E. Sisson, of Elgin, has been appointed chief of the medical staff of the Norwalk State Hospital near Los Angeles. This is a large new institution, built to accommodate 3,000 patients.

Dr. Edward Cunat was a member of the relief expedition for Montenegro on the steamship *Italia*, which was sunk in the Mediterranean recently. He fortunately was saved after being three hours in the water.

Drs. James M. Neff and Philip S. Chancellor, members of the Chicago unit, have been commended in general orders by General Sir John French for "superlative service" with the American Hospital Units in France.

Give Dr. Burr credit for "Making the Line" by his article in the January JOURNAL:

WOOF! WOOF!

[From the Illinois Medical Journal.]

History affords many instances of great achievements in advanced age. Picture to your mind the sturdy old dogs of Venice.

Corwin deserved to land "in line" with his "Marriage of *Deceased* Individuals" in the December journal.

Major-General William C. Gorgas, Surgeon-General, U. S. Army, addressed the Geographic Society January 7, on "Sanitation in Its Relation to Geography." January 10 he was the guest of honor at a banquet of the Chicago Single Tax Club and other organizations and spoke on "Sanitation and Single Tax." During his stay of six days in the city he was the recipient of a round of entertainments by clubs and organizations which thus showed their appreciation of the man who made the Panama Canal possible.

Dr. C. W. Lillie, president of the Illinois State Medical Society, with the presidents of other state societies, held a conference with President Wilson and the House Committee on Military Affairs to discuss the subject of efficiency in the Medical Department of the United States Army. While not advocating an increase in the army itself, they desire to show the necessity of a medical service in proportion to the size of the army, and especially to urge on congress the need of trained and efficient medical officers before an emergency prevents proper training.

News Notes

—A new $100,000 hospital for theatrical people is to be built this year on Irving Park boulevard near Sheridan road.

—The Chicago surface lines are to invest $250,000 in the installation of ventilation systems in 1,500 street cars.

—The U. S. Supreme Court has upheld the Illinois statute prohibiting the use of food preservatives containing boric acid.

—Epidemics of mumps are reported at the naval training station; scarlet fever at Rockford and Hillsboro, and diphtheria at Cherry.

—The Chicago Department of Health has been making strenuous efforts to locate the source of fake aspirin that has flooded the drug market lately.

—H. J. Fallon, a manual training teacher in Evanston, was found to be sick with smallpox after meeting his class which fortunately was smaller than usual.

—One life at least has been saved at the Cook County Hospital by blood transfusion in a case of gas poisoning, after the method advocated by Dr. Wm. H. Burmeister.

—Dr. Elnora Folkmar of Washington, is said to advocate the repopulation of Europe by artificial fertilization. Of course, only Apollos need apply. Don't crowd there. Get in line.

—The U. S. Supreme Court has upheld the Shurley amendment to the pure food and drug act directed against the inter-state transportation of fake cures. The shipment in question was a consumption "cure" sent from Chicago to Omaha.

—The Chicago Tuberculosis Institute announces that from all indications it will have between $25,000 and $30,000 to spend in its war on tuberculosis during 1916, the largest sum ever collected for this purpose by the sale of Red Cross Christmas seals.

—The Ottawa City Medical Society was entertained at dinner at the home of Dr. A. J. Roberts, January 12. Dr. T. W. Burroughs acted as toastmaster and was re-elected president. Dr. J. H. Edgecomb was elected secretary to succeed Dr. E. P. Hatheway.

—The Madison County Editorial Association, complying with the physicians' request, has decided not to mention any physician in connection with their cases, and will go them one better by not referring to them even socially except as "Mr." instead of "Dr."

—The heavy rain January 20 threatened to pour a flood of sewage into Lake Michigan through the Chicago river. This danger did not materialize, but sewage backed up so close to one of the pumping stations that a general alarm was given through the schools to "boil the water."

—At the annual meeting of the Chicago Ophthalmological Society held January 17, 1916, the following officers were elected to serve during the ensuing year: President, Dr. Wm. E. Gamble; vice-president, Dr. Francis Lane; secretary-treasurer, Dr. Paul Guilford; councilor, Dr. J. Sheldon Clark.

—The *Madison County Doctor* for January maintains the high standard of that excellent publication, and contains an interesting attendance roll of members for the past year. It is quite evident what a live secretary can do to the members in his own town at least, for only one member of Edwardsville registered a "goose egg," and he is 80 years old.

—The Robert Koch Society for the Study of Tuberculosis, affiliated with the Chicago Tuberculosis Institute, held its seventeenth meeting at the Morrison Hotel January 19, at 12 noon. Dr. Harry J. Corper of the Municipal Tuberculosis Sanatorium read a paper on "Complement Fixation in Tuberculosis" and the discussion was opened by Dr. Ludvig Hektoen.

—George O. Hartman, the St. Louis leper who escaped two years ago from the Leprosy Colony at Koch, Mo., is isolated in a wing of the Cook county jail. Since his escape from the leper colony, Hartman has been working at various trades, and in November opened a restaurant in Chicago and also kept a rooming house. He was arrested to answer to an indictment for robbery and on the usual physical examination, the disease was discovered.

—The American Orthopedic Association announces the appointment of Dr. Mark H. Rogers, Boston, as editor of *The American Journal of Orthopedic Surgery*, the only periodical in the English language devoted to Orthopedics. This journal, which has now completed 13 volumes as a quarterly publication, will henceforth be issued monthly, the first number of the new form being that of January, 1916.

The office of publication has been transferred from Philadelphia to Ernest Gregory, 126 Massachusetts Ave., Boston. The subscription price is $4.00 per year.

—Who would resist this invitation to attend Englewood's meeting?

Our last meeting was a daisy,
But this we say without fear,
The subject for this evening
Is the best so far this year
The Tonsil! O, you Tonsil!
What shall we do with you?
Are you a blessing in disguise,
Or evil thru and thru?
We have good men to tell us
Just what you really do,
You'll be discussed and maybe cussed
You'll know when they are thru.
Now doctor do not miss this chance,
This night to be on hand;
You surely know you ought to go,
To hear this subject grand.
—*The News-Letter.*

Marriages

JOHN GARDINER, M. D., to Miss Edith Miles, both of Mt. Morris, in Chicago, January 1.

WILLIAM EDWARD MORGAN, M. D., Chicago, to Mrs. Kate I. Berry of Bradford, Pa., December 22.

SELIM WALKER MCARTHUR, M. D., Chicago, to Miss Jean Dean Gillett Barnes of Decatur, Ill., January 1.

HARRY GRIFFITH HIRSCHLE, M. D., to Miss Leota L. Harless, both of Canton, Ill., in Chicago, December 18.

WILLIAM SPENCER HARVEY, M. D., Chicago, to Mrs. Allie McHenry Cartwright of Nashville, Tenn., at San Francisco, December 11.

Deaths

GEORGE EVELYN MORGAN, M. D. Hahnemann Medical College, Philadelphia, 1871; died at his home in Austin, Chicago, December 23.

HOLLAND W. RICHARDSON, M. D. Rush Medical College, 1862; Bellevue Hospital Medical College, 1870; aged 84; died at his home in Marengo, of pneumonia.

WILLIAM SIGSBEE, M. D. Castleton (Vt.) Medical College, 1852; aged 87; a practitioner of Illinois since 1868; died at his home in Mendon, Ill., January 1.

EDWARD M. HASSON, M. D. Rush Medical College, 1899; health commissioner of Peoria, and formerly county physician of Peoria county; died at the Proctor hospital after a brief sickness, January 16.

JAMES R. TWEDDALE, M. D. Rush Medical College, 1869; aged 83; a Fellow of the American Medical Association; a veteran of the Civil war; a mason; in active practice until his retirement three years ago; died of pneumonia at his home in Washburn, December 18.

PLINY W. BLANCHARD, M. D. Berkshire Medical College, Pittsfield, Mass., 1854; aged 86; assistant surgeon of the Forth-Ninth Wisconsin Infantry, U. S. V., throughout the Civil war; for sixteen years health officer of Harvard, Ill.; died at his home in Harvard, December 17.

WILLIAM LINCOLN BALLENGER, M. D. Bellevue Hospital Medical School, 1886; aged 54; of Chicago; a Fellow of the American Medical Association; well known as a specialist on diseases of the throat, nose and ear; professor of laryn-

William L. Ballenger, M. D.

gology, rhinology and otology in the College of Physicians and Surgeons, Chicago; secretary of the American Academy of Ophthalmology and Oto-Laryngology from 1899 to 1902; president from 1902 to 1904 and since that time councilor; and of the Chicago Laryngology and Otological Society; professor of otology in the Chicago Eye and Ear College; a member of the International Otological Congress; author of a standard textbook on diseases of the nose, throat and ear, which was published in 1900; died in Economy, Ind., from diabetes, December 21.

HIRAM CARNAHAN, M. D. Rush Medical College, 1860; aged 85; of Compton, Ill.; died at the home of his daughter in Mendota, Ill., January 3.

CORA E. TAYLOR, M. D. Pulte Medical College, Cincinnati, 1884; aged 62; died at her home in Chicago, December 22, from cerebral hemorrhage.

LUTHER J. HARVEY, M. D. Washington University, St. Louis, 1875; aged 64; of Griggsville; died suddenly of apoplexy, while making a professional call, January 17. Dr. Harvey attended Bellevue Hospital Medical College a year before entering Washington University. After spending a year as interne in the City Hospital of St. Louis, he began practice in Griggsville and enjoyed the confidence of a large clientele till his death. He was a good citizen and active in civic affairs; director of the Griggsville National bank and of the Pike County Telephone Company; and had served the city as alderman. He was a member of Morgan County Medical Society, and served as president in 1899. He was delegates to the American Medical Association from the Illinois State Medical Society in 1900, and April 19, 1900, was elected the first president of the

Luther J. Harvey, M. D.

Pike County Medical Society, which he was instrumental in organizing. In 1901 he was elected a member of the Judicial Council of the Illinois State Medical Society, a position which he held three years.

MAXIMILIAN KUZNIK, M. D. College of Physysians and Surgeons, Chicago, 1903; aged 36; professor of clinical diagnosis in Hering Medical College, and the Chicago College of Medicine and Surgery; died at his home in Chicago, January 4, from rheumatic endocarditis.

EMMETT J. COLE, M. D. Hahnemann Medical College, Chicago, 1896; aged 64; a member of the Illinois State Medical Society and of the State Medical Society of Wisconsin; for four years mayor of Rockton, Ill.; died at his home in that city, December 22, from heart disease.

FRANK GRANT MASON, M. D. Rush Medical College, 1890; aged 50; for eight years chief adjustor of the Pacific Mutual Life & Accident Insurance Co., and North American Accident Insurance Co., also a graduate in pharmacy; died at his home in Chicago, December 23, from heart disease.

HENRY S. METCALF, M. D. Northwestern University Medical School, 1886; aged 62; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; died at his home in Mount Carroll, Ill., December 15, from septicemia due to an operation wound.

ADOLPHUS M. SCHEEL, M. D. University of Munich, Bavaria, 1876; aged 64; a Fellow of the American Medical Association; died at his home in Belleville, Ill., December 16, from heart disease. The Belleville Medical Association at a special meeting December 18 adopted resolutions recognizing the sterling worth of Dr. Scheel and regretting his death.

JOHN ANDERSON DAVIS, M. D. University of Michigan, Ann Arbor, 1873; aged 68; a Fellow of the American Medical Association; a well-known practitioner of central Illinois; a member of the Illinois Central and Yazoo and Mississippi Valley Railway Surgeons' Association; local surgeon at Farmer City for the Illinois Central Railroad since 1899; died at his home in Farmer City, December 20, from pneumonia.

HENRY CLAY FAIRBROTHER, M. D., Washington University, St. Louis, 1872; aged 70; a Fellow of the American Medical Association; a veteran of the Civil war; originator of the East St. Louis park system; a director of the Illinois State Bank; surgeon to many of the railways centering in East St. Louis; for several terms a member and president of the local school board; died at his home, December 15, from heart disease.

CHARLES HEADY BEARD, M. D. University of Louisville, Ky., 1887; aged 60; a Fellow of the American Medical Association and American College of Surgeons; a member of the Mississippi Valley Medical Association, Chicago Ophthalmological Society of which he was once president, American Ophthalmological Society and Physicians' Club of Chicago; chief surgeon of the Illinois Charitable Eye and Ear Infirmary and head of the ophthalmologic staff of the Passavant Memorial Hospital; for more than thirty years a specialist on diseases of the eye and ear; died at his home in Chicago, January 3, from carcinoma of the stomach.

NEW AND NON-OFFICIAL REMEDIES

During December the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion with New and Non-official Remedies:

Heilkraft Medical Co.: Dimazon, Dimazon Oil, Dimazon Ointment, Dimazon Powder.

Hoffman-La Roche Chemical Works: Betain Hydrochloride, Roche; Beta-Naphthol Benzoate, Roche; Ergotinine Citrate, Roche; Homatropine Hydrochloride, Roche; Seiden Peptone, Roche; Theobromine and Sodium Acetate, Roche.

Hynson, Westcott and Co.: Mercury Biniodide Oil Solution in Ampules, H. W. and Co.

Knoll and Co.: Ichthalbin Tablets, 5 grs.; Triferrin Tablets, 5 grs.

Merck and Co.: Antithyroidin Moebius Tablets, ¾ grs.; Apiol, Merck; Berberine Hydrochloride, Merck; Creosote Carbonate, Merck; Dionin Tablets, Hypodermic, 1 gr.; Dionin Tablets, ¼ gr.; Ergotin, Merck; Euquinine Tablets, 2 grs.; Euquinine Tablets, 5 grs.; Ferratin Tablets, 4½ grs.; Iodipin Tablets, 3 min.; Iron Lactate, Merck; Liquid Petrolatum, Merck; Quabain, Merck; Phenolphthalein, Merck; Phloridzin, Merck; Quinine Tannate, Merck; Sodium Phosphate, Monobasic, Merck; Sodium Nucleinate, Merck; Stypticin Tablets, Hypodermic, ¾ gr.; Stypticin Tablets, Dental, ¾ gr.; Stypticin Tablets, Sugar-Coated, ¾ gr.; Sulphanilic Acid, Merck; Theophyllin Sodium Acetate Tablets, .15 gm.; Triphenin Tablets, 5 grs.; Tropacocaine Hydrochloride Tubes, Sterilized, 1 gr.; Veronal Sodium Tablets, 5 grs.

H. K. Mulford Co.: Diphtheria Toxin for Immunity Test (Schick Test), Mulford.

Parke, Davis and Co.: Iodalbin and Mercurol Tablets; Mercurol Tablets, ¼ gr.; Mercurol Tablets, ½ gr.; Mercurol Tablets, 1 gr.; Mercurol Tablets, 2 grs.; Mercurol with Potassium Iodide Tablets.

Powers-Weightman-Rosengarten Co.: Calcium Phenolsulphonate, P. W. R.

Swan-Myers Co.: Swan's Typhoid Bacillus Vaccine (No. 44) (Hospital Package); Swan's Typhoid Bacillus Vaccine (No. 44) (Board of Health Package).

Lehn and Fink: The Council has recognized Lehn and Fink as selling agent for Chloralamid, Schering.

Since publication of New and Non-official Remedies, 1915, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Non-official Remedies:"

Euresol pro Capillis.—Euresol (see New and Non-official Remedies, 1915, p. 268) perfumed to render it suitable for scalp lotions. Merck and Co., New York (Jour. A. M. A., Dec. 4, 1915, p. 2009).

Pollen Extract (Pollen Vaccine).—A solution of pollen protein. It is used for the relief of prophylaxis of a common type of hay fever (pollinosis). Before using it the patient's susceptibility and tolerance should be determined. Treatment with pollen extract has seemed to give relief in some cases.

Hay Fever Vaccine, Mulford (Autumnal).—Pollen extract prepared from ragweed. Marketed in packages of four syringes containing, respectively, 0.0025 mg., 0.005 mg., 0.01 mg. and 0.02 mg. of pollen protein. Also in separate syringes containing 0.02 mg. pollen protein. The H. K. Mulford Co., Philadelphia, Pa. (Jour. A. M. A., Dec. 4, 1915, p. 2009).

Mercuric Succinimide, Merck.—A non-proprietary brand of mercuric succinimide admitted to New and Non-official Remedies. Merck and Co., New York (Jour. A. M. A., Dec. 4, 1915, p. 2009).

Morphine Meconate, Merck.—A non-proprietary brand of Morphine Meconate admitted to New and Non-official Remedies. Merck and Co., New York (Jour. A. M. A., Dec. 4, 1915, p. 2009).

Swan's Staphylococcus Bacterin (No. 37).—Marketed in packages of six 1 Cc. vials and in 20 Cc. vials. Swan-Myers Company, Indianapolis, Ind.

Swan's Streptococcus Bacterin (No. 43).—Marketed in packages of six 1 Cc. vials and in 20 Cc. vials. Swan-Myers Company, Indianapolis, Ind.

Calcium Peroxide, Merck.—A non-proprietary brand of calcium peroxide admitted to New and Non-official Remedies. Merck and Company, New York.

Sodium Peroxide, Merck.—A non-proprietary brand of sodium peroxide admitted to New and Non-official Remedies. Merck and Company, New York.

Zinc Peroxide, Merck.—A non-proprietary brand of zinc peroxide admitted to New and Non-official Remedies. Merck and Company, New York.

Ethyl Salicylate, Merck.—A non-proprietary brand of ethyl salicylate admitted to New and Non-official Remedies. Merck and Company, New York.

Osmic Acid, New York.—A non-proprietary brand of osmium tetroxide admitted to New and Non-official Remedies. Merck and Company, New York.

Sodium Oleate, Merck.—A non-proprietary brand of sodium oleate admitted to New and Non-official Remedies. Merck and Company, New York.

Thiosinamine, Merck.—A non-proprietary brand of thiosinamine admitted to New and Non-official Remedies. Merck and Co., New York.

Urea, Merck.—A non-proprietary brand of urea admitted to New and Non-official Remedies. Merck and Company, New York.

Ampules Sodium Cacodylate, Mulford, 7¾ grains.—Each ampule contains sodium cacodylate 0.5 gm. H. K. Mulford Company, Philadelphia, Pa.

Ampules Sodium Cacodylate, Mulford, 15 grains.—Each ampule contains sodium cacodylate, 1 gm. H. K. Mulford Company, Philadelphia, Pa.

Ampules Solution Pituitary Extract, Mulford, 0.5 Cc.—Each ampule contains solution pituitary extract 0.5 Cc. H. K. Mulford Company, Philadelphia, Pa. (Jour. A. M. A., Dec. 11, 1915, p. 2085).

Scarlatina Strepto-Serobacterin, Mulford (Therapeutic), (Sensitized Scarlatinal Streptococcic Vaccine).—Marketed in packages of four syringes. H. K. Mulford Co., Philadelphia, Pa. (Jour. A. M. A., Dec. 18, 1915, p. 2167).

Quinine Dihydrochloride (Quininae Dihydrochloridum).—The dihydrochloride of the alkaloid quinine. Since quinine dihydrochloride is very soluble, its use has been proposed where concentrated solutions of quinine are wanted, as for sub-cutaneous injections and similar purposes.

Ampules Quinine Dihydrochloride, Mulford, 0.24 Gm.—Each ampule contains 0.24 gm. quinine dihydrochloride in 1 Cc. of sterile solution. H. K. Mulford Co., Philadelphia, Pa.

Ampules Quinine Dihydrochloride, Mulford, 0.05 Gm.—Each ampule contains 0.5 gm. quinine dihydrochloride in 1 Cc. of sterile solution. H. K. Mulford Co., Philadelphia, Pa. (Jour. A. M. A., Dec. 18, 1915, p. 2167).

Purified Tricresol, Mulford.—A mixture of isomeric cresols, corresponding closely to Cresol, U. S. P. H. K. Mulford Co., Philadelphia, Pa. (Jour. A. M. A., Dec. 18, 1915, p. 2167).

Iodosticks (Iodine 60 per cent. and Potassium Iodide 40 per cent.).—Wooden sticks 1½ inches long, tipped with a mixture of iodine 60 per cent. and potassium iodide 40 per cent. Antiseptic Supply Co., New York. (Jour. A. M. A., Dec. 18, 1915, p. 2167).

Iodoapplicators and Iodoapplicators, Special (Iodine 60 per cent. and Potassium Iodide 40 per cent.).—Wooden sticks 6½ and 12 inches long, respectively, tipped with a mixture of iodine 60 per cent. and potassium iodide 40 per cent. Antiseptic Supply Co., New York (Jour. A. M. A., Dec. 18, 1915, p. 2167).

G. Strophanthin (Thoms), Merck.—A non-proprietary brand of ouabain, crystallized. Merck and Company, New York.

Mercury Biniodide Oil Solution in ampules, H. W. and Co.—One Cc. of solution contains red mercuric iodide in a neutral fatty oil, 0.1 gm. (1/6 grain). Hynson, Westcott and Co., Baltimore, Md.

Mercurol Tablets, ¼ Gr.—Each tablet contains mercurol 0.016 gm. Parke, Davis and Co., Detroit, Mich.

Mercurol Tablets, ½ Gr.—Each tablet contains mercurol 0.03 gm. Parke, Davis and Co., Detroit, Mich.

Mercurol Tablets, 1 Gr.—Each tablet contains mercurol 0.065 gm. Parke, Davis and Co., Detroit, Mich.

Mercurol Tablets, 2 Grs.—Each tablet contains mercurol 0.13 gm. Parke, Davis and Co., Detroit, Mich.

Mercurol with Potassium Iodide Tablets.—Each tablet contains mercurol ¼ gr. and potassium iodide 1 gr. Parke, Davis and Co., Detroit, Mich.

Iodalbin and Mercurol Tablets.—Each tablet contains iodalbin 5 grs. and mercurol 1 gr. Parke, Davis and Co., Detroit, Mich.

Liquid Petrolatum, Merck.—A non-proprietary brand of liquid petrolatum, U. S. P. It is made from American petroleum. It is colorless, non-fluorescent, practically odorless and tasteless. Merck and Co., New York (Jour. A. M. A., Dec. 25, 1915, p. 2239).

Book Notices

A Text Book of the Practice of Medicine. By James M. Anders, M. D. Ph. D., LL. D., Professor of Medicine and Clinical Medicine, Medico-Chirurgical College, Philadelphia. Twelfth Edition Thoroughly Revised. Octavo of 1336 pages, fully illustrated. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, $5.50 net; Half Morocco, $7.00 net.

This twelfth revision during eighteen years illustrates the great changes that are being made constantly in our ideas of medical practice. Twelve revisions indicate in no uncertain manner the popularity of medical work, and a volume undergoing such frequent and careful change needs no other recommendation.

The general make-up of the book has not been changed from former editions, but does contain the up-to-date views of theory and practice. Much additional material has been added in this revision, and many of the subjects have been rewritten. Little has been given of history of medicine. Bacteriology and pathology have been generously treated, and the treatment is studied in accordance with the present-day theories. It is one of the excellent text-books of practice, both for the student and practitioner.

Post-Mortem Examinations. By William S. Wadsworth, M. D., Coroner's Physician of Philadelphia. Octavo volume of 598 pages with 304 original illustrations. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, $6.00 net; Half-Morocco $7.50 net.

Every medical man should know something of post-mortem examinations. Unfortunately, many do not, or, at least, know very little about the subject. Literature upon this subject is not profuse by any means, and a new book on this subject will, we think, be appreciated.

This volume seems to cover the entire field. Much of it is brief, but calls attention to many post-mortem findings and conclusions reached from the findings. The photographs help materially in making clear the text. We think it a good text-book on an important subject.

American Illustrated Medical Dictionary (Dorland). A new and complete dictionary of terms used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, Veterinary Science, Nursing, Biology, and kindred branches; with new and elaborate tables. Eighth Revised Edition. Edited by W. A. Newman Dorland, M. D. Large octavo of 1135 pages, with 331 illustrations, 119 in colors. Containing over 1,500 more terms than the previous edition. Philadelphia and London: W. B. Saunders Company, 1915. Flexible Leather, $4.50 net; thumb index, $5.00 net.

The previous edition of this work appeared in 1913. This edition has been carefully revised throughout, several new terms defined, and the text-matter increased by thirty pages. Many new texts and tables have been formulated during the last two years, and these will be found in this edition. The volume is of convenient size and mechanical make-up—not purporting to be an encyclopedia, but is a complete, concise medical dictionary.

A large amount of matter has been arranged in tabular form for the convenience of the user. The usual anatomic and clinical tables, together with specially prepared tables of tests, staining methods, methods of treatment, etc., are found. It is altogether a very valuable aid for the medical man.

Bone-Graft Surgery. By Fred H. Albee, M. D., F. A. C. S., Professor of Orthopedic Surgery at the New York Post-Graduate Medical School and the University of Vermont. Octavo volume of 417 pages, with 332 illustrations, 3 of them in colors. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, $6.00 net; half morocco, $7.50 net.

In no field of surgery have results been more brilliant and successful in bone surgery of the last few years. The disfiguring deformities that are now relieved and overcome will mark this as an era of bone surgery. The bone graft, while not strictly new, is now having so much wider application and is of so much value, that it alone will mark this as the epoch-making time of bone surgery.

While much has been seen in medical journals, not many text-books are written on the subject. In this volume are given many applications of this specialty. Illustrations of specially devised instruments of special operations, together with many roentgengrams and drawings, make this a valuable work to the surgeon, or to any one doing bone work.

Trachoma. Its Prevalence, Its Effects Upon Vision and the Methods of Control and Eradication, by Gordon L. Berry, Field Secretary, National Committee for the Prevention of Blindness. December, 1915. 130 East Twenty-second street, New York City.

This pamphlet by Dr. Berry, Field Secretary of the National Committee for the Prevention of Blindness, is an excellent paper, written particularly for the layman. The text and a number of illustrations por-

tray fully the danger of trachoma, and how it is frequently contracted. While not written as a treatise on trachoma from a medical standpoint, it contains a great deal of interesting data on this malady.

A copy will be sent free to any physician upon application to the National Committee for the Prevention of Blindness, 130 East Twenty-second street, New York City.

"Speaking of Operations." By Irvin S. Cobb. Illustrations by Tony Sarg. George H. Doran Company, New York. Price, 50 cents net.

This little book is a layman's description of his experience with doctors and an operation for appendicitis; written in Mr. Cobb's inimitable humorous way. While written in funny vein, it is just possible that Mr. Cobb was quite serious about certain statements. The little book will give one an hour's thorough enjoyment.

Volume IV., Number 6, of Murphy's Clinics, December, 1915, just out and contains, among others, the following clinical cases:

Leukoplakic Papilloma of Buccal Mucosa.
Recurrent Leukoplakic Papilloma of Buccal Mucosa.
Papilloma of Lip and of Cheek.
Congenital Nasal Deformity.
Carcinoma of Maxilliary Antrum.
Congenital (Thyroglossal Duct) Sinus of Neck.
Bilateral Cervical Ribs.
Osteosarcoma of Scapula.
Osteosarcoma of Humerus.
Cicatricial Fixation of Ulnar Nerve in Its Groove.
Hyperflexion Fracture of Radius and Ulna.
Extensor Contracture of Hands Following Burns.
Multiple Angiomata.
Biliary Calculus Impacted at Ampulila of Vater.
Andenocarcinoma of Neck of Uterus.
Undescended Testicle.
Congenital Luxation of Both Hips.
Coxa Vara (Bilateral).
I. Recent Comminuted T-fracture in Lower Third of Femur.
Fracture of Internal Semilunar Cartilage.
Foreign Bodies in Knee-joint.
Sarcoma of Popliteal Space.

The Medical Clinics of Chicago. January, 1916. Volume I, Number 4. Published bi-monthly by W. B. Saunders Company, Philadelphia and London. Price per year, $8.00.

This volume of medical clinics seems to be unusually good. The subjects discussed are of those conditions commonly met but frequently hard to diagnose.

The clinicians of this number are Doctors Frederick Tice, Walter W. Hamburger, George H. Weaver, Charles Louis Mix, Ralph C. Hamill, Charles Spencer Williamson, Robert B. Preble, Maurice L. Goodkind and Isaac A. Abt.

Surgical Operations with Local Anesthesia. Second Edition. By Arthur E. Hertzler, A. M., M. D., Ph. D., F. A. C. S., Surgeon to the Halsted Hospital, Kansas; the Swedish Hospital, Kansas City, Mo.; and to the General Hospital, Kansas City, Mo. Surgery Publishing Company, 92 William street, New York. 1916. Price $3.00.

Local anesthesia is soon going to be the anesthesia of choice in many operations now commonly done under general anesthesia. With this view in mind, every medical man should educate himself in the use of local anesthesia.

The author has given detailed description of the various procedures, not only for minor work, but also for the major operations.

The book is entirely practical and its pages are not filled with theory.

The large number of illustrations clearly places to the eye of the reader the text of the book, and both the general practitioner and surgeon will appreciate this work as a reliable guide in their operation work under local anesthesia.

Beauty a Duty, The Art of Keeping Young. By Susanna Cocroft, Author of "What to Eat and When," "Personal Hygiene," "The Reading of Character Through Bodily Expression," etc. Rand, McNally & Co., Chicago; New York. Price $2.00 net.

Practical Cystoscopy and the Diagnosis of Surgical Diseases of the Kidneys and Urinary Bladder. By Paul M. Pilcher, M. D., Consulting Surgeon to the Eastern Long Island Hospital. Second Edition Thoroughly Revised and Enlarged. Octavo of 504 pages, with 299 illustrations, 29 in colors. Philadelphia and London: W. B. Saunders Company. 1915. Cloth, $6.00 net; half morocco, $7.50.

A new revision of this text, by Dr. Pilcher, is just from the presses of W. B. Saunders Co.

The volume deals largely with pyelography, detailing the indication for its use, its technic, and the diagnostic value of radiographic studies of the ureter and kidney. The volume is primarily a text-book on cystoscopy, and aims to make clear the indication for and use of the cystoscope.

The illustrations are numerous and of good quality. Those in color are especially to be mentioned. Altogether we think it a good text upon this subject.

Painless Childbirth, Eutocia and Nitrous Oxid-Oxygen Analgesia. By Carl Henry Davis, A. B., M. D., Associate in Obstetrics and Gynecology, Rush Medical College in affiliation with the University of Chicago; Assistant Attending Obstetrician and Gynecologist to the Presbyterian Hospital, Chicago. Forbes & Company, Chicago. 1916. Price, $1.00.

Nitro by Hypo, A Pep-Tonized Tonic for the Physician. By Edwin P. Haworth, Superintendent of The Willows Maternity Sanitarium, Kansas City. The Willows Magazine Company. Price ?

A small volume of short essays on topics pertaining to the physician or his practice.

Report on the Medico-Military Aspects of the European War, from Observations taken behind the Allied Armies in France, by Surgeon A. M. Fauntleroy, U. S. Navy, Instructor in Surgery, U. S. Naval Medical School, under the direction of the Bureau of Medicine and Surgery, Navy Department, Washington, D. C. Washington Government Printing Office. 1915.